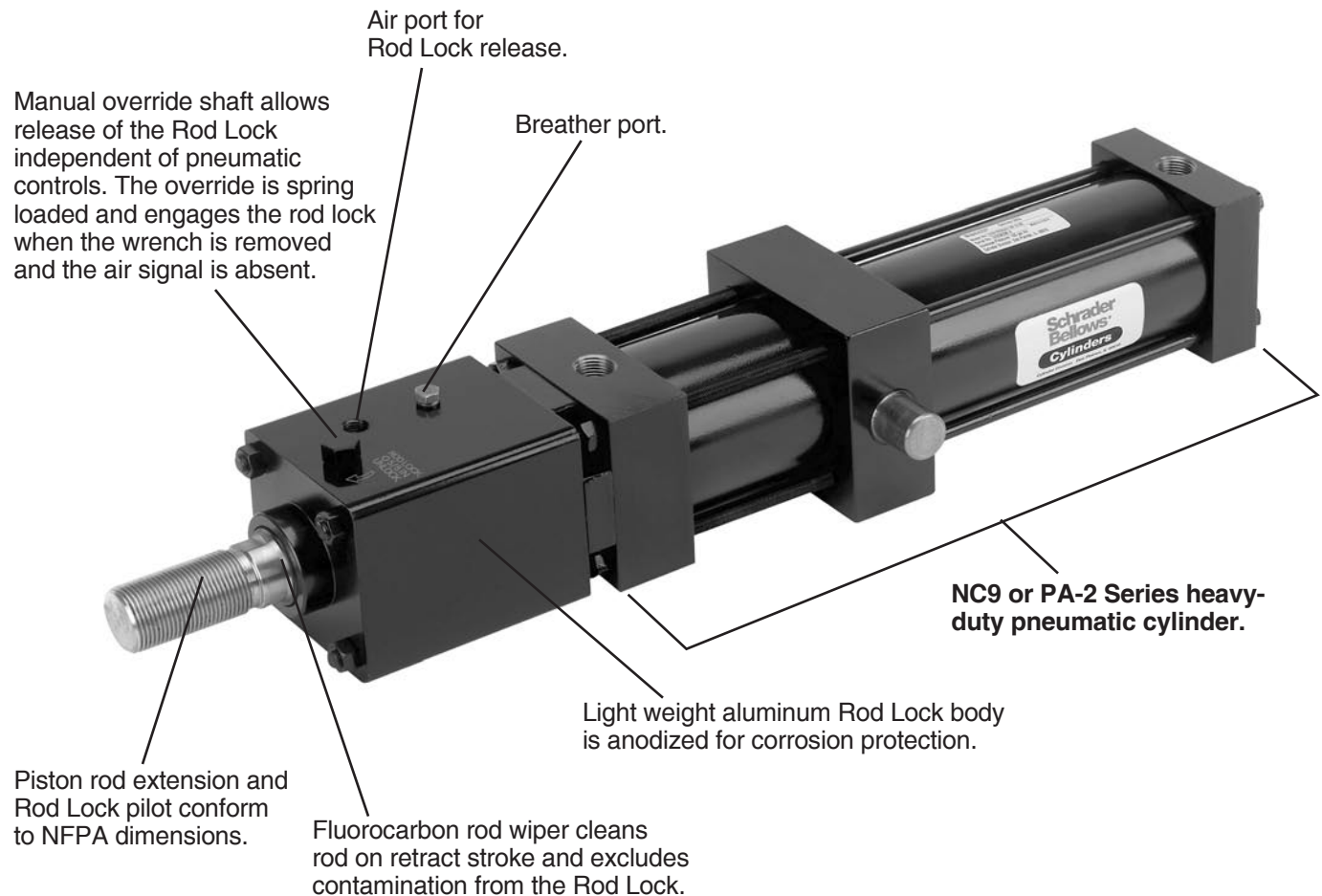


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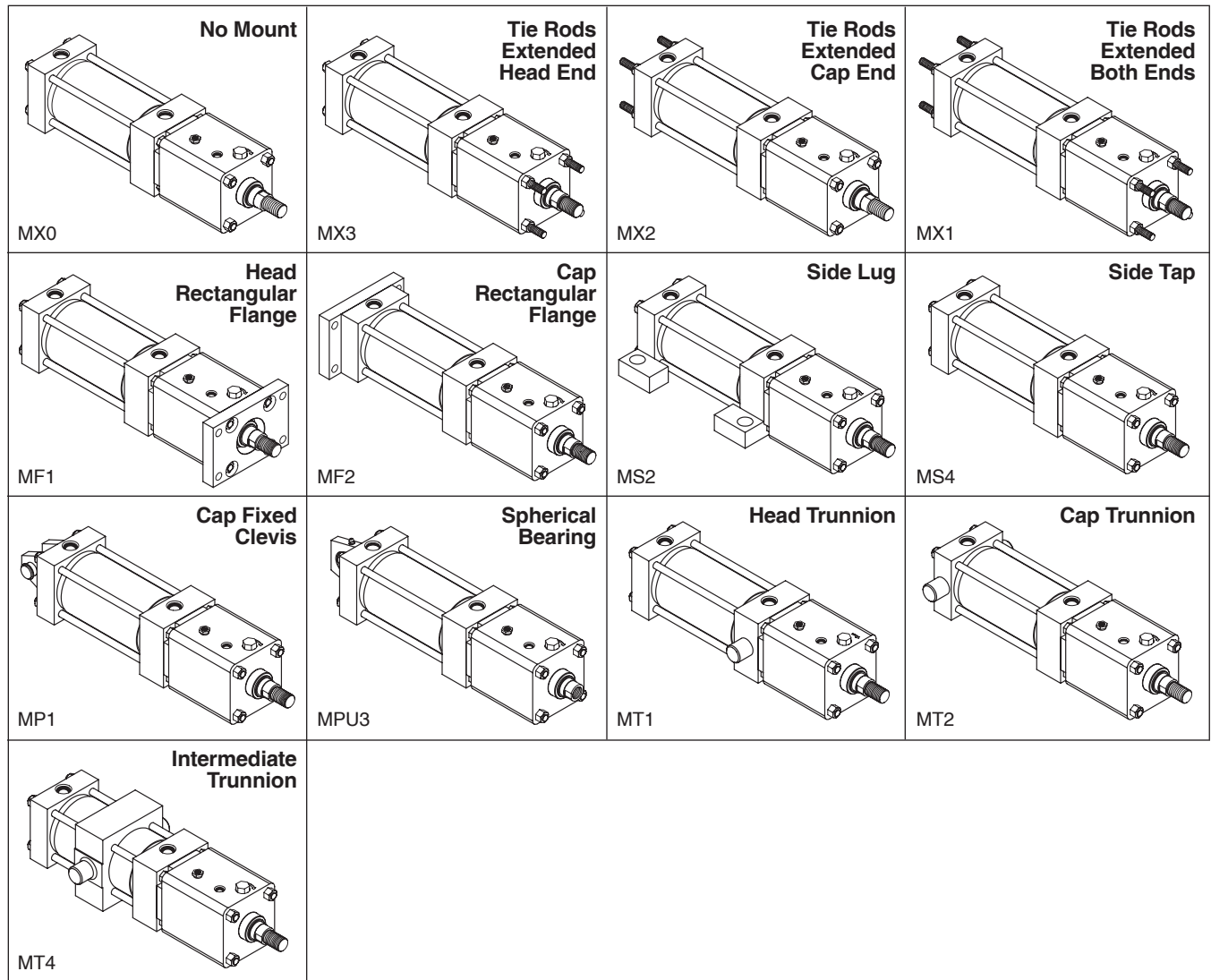
**Benefits of using a piston Rod Lock include:**

- Prevents rod movement upon release of stored energy
- Eliminates the need for pilot operated check valves for load holding
- Eliminates complicated piping between pilot operated check valves and the cylinder

**Rod Lock Features**

- **True Bolt-on Modularity** – the cylinder is built and tested as a stand alone unit. The Rod Lock is then assembled and tested at rated holding force.
- **Large Rod Lock Clamping Surface** – provides uniform force to the rod contact area. This allows holding forces to resist 100 psi input on the cylinder cap end for most bore and rod combinations.
- **Spring-engaged, air-released operation** – ensures positive holding in power-off situations with minimal air volume required for release.
- **Manual release is standard** – cam operated release disengages the Rod Lock with a simple turn of a hex bolt. The default-to-lock function springs back to the engaged position when released.
- **Rod Lock is sealed to withstand harsh environments** – NEMA 4X rating protects internal components from contamination

NC9, PA-2 Series with Rod Lock Mounting Styles



**A**  
 PA-2  
 NC9  
 Rod Lock

Standard Specifications

- 13 Standard mounting styles
- Bore sizes – 1 1/2" to 8"
- Strokes – up to 120"
- Piston Rod Diameters – 5/8" to 2 1/2"

- Working pressure up to 100 psi
- Single and double rod construction available
- Temperature range – -10°F (-23°C) to +165°F (+74°C) (depending on seal class)

Seal Types	Typical Fluids	Temperature Range
1 – Standard Nitrile Seals	Dry 50µ filtered air	-10°F (-23°C) to +165°F (+74°C)
2 – Optional (At extra cost) Fluorocarbon Seals	Dry 50µ filtered air	-10°F (-23°C) to +165°F (+74°C)

Note: Type 2 seals do not increase temperature resistance of the cylinder and rock lock assembly. Specify Type 2 seals for chemical compatibility.

**How to Select a NC9 or PA-2 Series Cylinder**

Step 1 – **Determine the correct cylinder bore size** necessary to achieve required push or pull force using the available operating pressure (up to 100 psi). Follow steps in Theoretical Push and Pull Forces below.

Step 2 – **Select the mounting style** that fits your installation needs. Determine the bore and rod sizes available for the required mounting style and complete the model selection.

Step 3 – **Choose a rod end style** and the desired rod end accessories.

**Theoretical Push and Pull Forces**

The cylinder output forces are derived from this formula:  
 $F = P \times A$

Where F = Force in pounds.

P = Pressure at the cylinder in pounds per square inch.

A = Effective area of cylinder piston in square inches.

To determine the bore size for the application, follow the steps below.

1. Select the Operating Pressure column closest to that desired.

2. In the same column, identify the force required to move the load (always rounding up). If the piston rod is in compression use the 'Push' row and if the piston rod is in tension use the 'Pull' row.

3. In the row to the left is the bore required. To select the correct rod diameter for the stroke required use the Piston Rod-Stroke Selection Chart on page C-67.

If the cylinder envelope dimensions are too large for the application, increase the operating pressure to the maximum pressure in the table below, if possible, and repeat steps 1 - 3.

**Push and Pull Force in Pounds**

Bore Ø	Rod Ø	Operating Direction	Piston Area (inches <sup>2</sup> )	Operating Pressure in psi		
				60	80	100
1 1/2	5/8	Push	1.767	106	141	177
		Pull	1.460	88	117	146
2	5/8	Push	3.142	189	251	314
		Pull	2.835	170	227	284
	1	Push	3.142	189	251	–
		Pull	2.357	141	189	–
2 1/2	5/8	Push	4.909	295	393	491
		Pull	4.602	276	368	460
	1	Push	4.909	295	393	491
		Pull	4.124	247	330	412
3 1/4	1	Push	8.296	498	664	830
		Pull	7.511	451	601	751
	1 3/8	Push	8.296	498	664	830
		Pull	6.811	409	545	681
	1 3/4	Push	8.296	498	664	830
		Pull	5.891	353	471	589
4	1	Push	12.566	754	1005	1257
		Pull	11.781	707	942	1178
	1 3/8	Push	12.566	754	1005	1257
		Pull	11.081	665	886	1108
	1 3/4	Push	12.566	754	1005	–
		Pull	10.161	610	813	–

Bore Ø	Rod Ø	Operating Direction	Piston Area (inches <sup>2</sup> )	Operating Pressure in psi		
				60	80	100
5	1	Push	19.635	1178	1571	1964
		Pull	18.850	1131	1508	1885
	1 3/8	Push	19.635	1178	1571	1964
		Pull	18.150	1089	1452	1815
	1 3/4	Push	19.635	1178	1571	–
		Pull	17.230	1034	1378	–
6	1 3/8	Push	28.274	1696	2262	2830
		Pull	26.789	1607	2143	2679
	1 3/4	Push	28.274	1696	2264	2827
		Pull	25.869	1552	2070	2587
	2	Push	28.274	1696	2262	–
		Pull	25.132	1508	2011	–
8	1 3/8	Push	50.265	3016	4021	5027
		Pull	48.780	2927	3902	4878
	1 3/4	Push	50.265	3016	4021	5027
		Pull	47.860	2872	3829	4786
	2 1/2	Push	50.265	3016	4021	–
		Pull	45.365	2722	3629	–

**Cylinder Pressure Rating & Rod Lock Holding Force**

Bore Ø	1 1/2	2	2 1/2	3 1/4	4	5	6	8
Rod Ø	5/8	5/8, 1	5/8, 1	1, 1 3/8	1, 1 3/8, 1 3/4	1, 1 3/8, 1 3/4	1 3/8, 1 3/4, 2	1 3/8, 1 3/4, 2 1/2
Cylinder Pressure Rating (psi)	100	100	80	100	100	80	100	80
Rod Lock Holding Force (lb.)	180	314	250	491	830	1256	1005	1963

**Rod Lock Connection / Rod Lock Specifications**

**Connection**

The Rod Lock release signal should be taken from the main air supply and must be **60 psi or higher**. Avoid using cylinder lines for the release signal because pressure levels may drop below the specified minimum. A separate quick-venting valve should be used for ON/OFF operation of the Rod Lock.

**Caution: Release pressures that fall below 60 psi may result in engagement of the rod lock.**

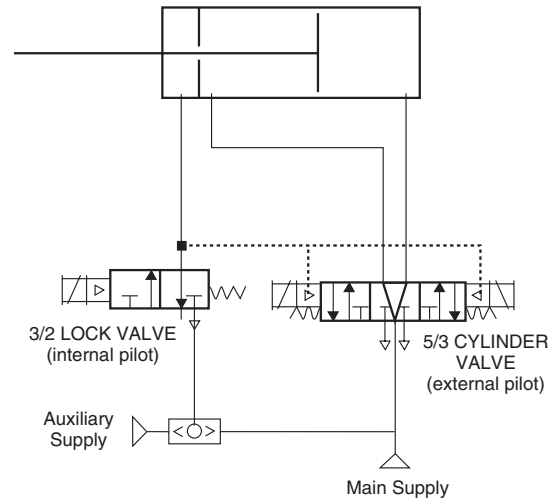
The Rod Lock is not intended to stop a moving load. The piston rod should not be moving when the Rod Lock release signal is removed.

NC9/PA-2 Series with Rod Lock is not intended for use in water service applications, environments with high humidity levels, or when fluids may splash on the cylinder or piston rod.

**Other NC9/PA-2 Series and Rod Lock Features**

- The Rod Lock can be operated in both directions, engaging with the same holding force
- The NC9/PA-2 Series with Rod Lock can be mounted in any orientation. E.g. vertical, horizontal, rod up or down.
- The piston rod must not be rotated when the Rod Lock is engaged. The Rod Lock cannot be used for torsional braking.
- Rated Rod Lock holding force applies only to static load conditions. If the rated load value is exceeded, slippage and other problems (including damage to Rod Lock and piston rod) may occur.
- An unrelated, redundant safety system is recommended to help ensure personal safety.

**Sample Pneumatic Circuit**



1. The Lock Valve must be energized during cylinder motion. When the Lock Valve is not energized, the Rod Lock is engaged and the Cylinder Valve must be in the mid-position.
2. The Cylinder Valve must be energized during extend or retract. It should also be energized at stroke end until a change of direction is required.
3. The 5/3 Cylinder Valve mid-position may be pressurized outlets if the combination of pressure load on the cylinder and the inertia effects of the attached load do not exceed the holding force rating of the rod lock device, including allowance for wear.
4. Do not use cylinder lines for logic functions because pressures can vary significantly.

**Rod Lock Specifications**

Bore Ø	Rod Ø	Air Chamber Volume (in <sup>3</sup> )	Rated Holding Force (lbs)	Minimum Override Torque (ft-lbs applied to hex shaft)	Cylinder Pressure Rating (psi)
1.50	0.625	0.25	180	2	100
2.00	0.625	0.71	314	5	100
	1.000	0.68	250	5	80
2.50	0.625	1.26	491	7	100
	1.000	1.49	491	7	100
3.25	1.000	3.20	830	17	100
	1.375	2.11	830	17	100
4.00	1.000	6.73	1256	45	100
	1.375	4.78	1256	45	100
	1.750	3.36	1005	45	80
5.00	1.000	11.50	1963	72	100
	1.375	9.50	1963	72	100
	1.750	8.28	1570	72	80
6.00	1.375	14.08	2830	135	100
	1.750	12.75	2830	135	100
	2.000	12.30	2264	135	80
8.00	1.375	22.66	5026	160	100
	1.750	23.21	5026	160	100
	2.500	17.53	4020	160	80

**Cylinder Weights**

To determine the weight of an NC9 or PA-2 Series with Rod Lock cylinder, first select the basic zero stroke weight for the mounting required, and then calculate the weight of the cylinder stroke and add the results to the basic weight. For extra rod extension, use piston rod weights per inch in Table B.

**Table A – NC9 or PA-2 Series Cylinder with Rod Lock Weights in Pounds**

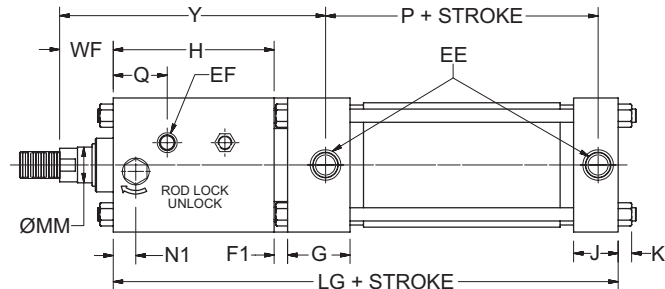
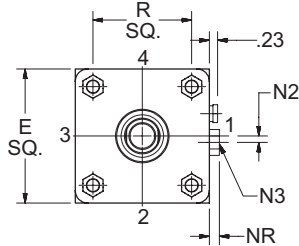
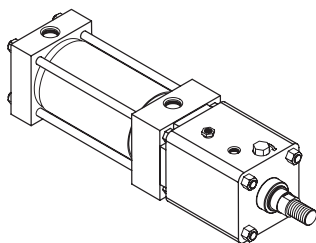
Bore Ø	Rod Ø	Single Rod Cylinders Basic Weight - Zero Stroke		Add Per Inch of Stroke	Double Rod Cylinders Basic Weight - Zero Stroke		Add Per Inch of Stroke
		MX0, MX1, MX2, MX3, MF1, MF2, MS4	MP1, MPU3, MS2, MT1, MT2, MT4		MDX0, MDX1, MDX3, MDF1, MDS4	MDS2, MDT1, MDT4	
1 1/2	5/8	6.0	6.6	0.30	6.5	7.1	0.60
2	5/8	10.0	10.4	0.50	11.7	12.1	1.00
	1	10.5	11.0	0.65	12.5	13.0	1.30
2 1/2	5/8	13.6	14.3	0.60	16.0	16.7	1.20
	1	14.1	14.6	0.75	16.6	17.1	1.50
3 1/4	1	24.6	25.6	0.80	30.1	31.1	1.60
	1 3/8	25.1	26.1	1.00	30.6	31.6	2.00
	1 3/4	25.9	26.9	1.25	32.2	33.2	2.50
4	1	38.7	43.7	1.00	45.7	50.7	2.00
	1 3/8	39.2	44.2	1.20	46.2	51.2	2.50
	1 3/4	40.0	45.0	1.50	47.8	52.8	3.00
5	1	56.3	63.3	1.10	65.3	72.3	2.20
	1 3/8	56.8	63.8	1.30	65.8	72.8	2.60
	1 3/4	57.6	64.6	1.55	67.4	74.4	3.10
6	1 3/8	104.8	113.8	1.50	116.8	125.8	3.00
	1 3/4	105.6	114.6	1.75	118.5	127.5	3.50
	2	106.3	115.3	2.00	120.0	129.0	4.00
8	1 3/8	158.4	163.4	2.00	172.4	177.4	4.00
	1 3/4	159.2	164.2	2.25	174.1	179.1	4.50
	2 1/2	161.7	166.7	3.00	179.1	184.1	6.00

**Table B – Piston Rod Weights in Pounds**

Rod Ø	Piston Rod Weight Per Inch
5/8"	0.09
1"	0.22
1 3/8"	0.42
1 3/4"	0.68
2"	0.89
2 1/2"	1.40

Style MX0 – Single Rod End

1 1/2" to 8" Bore Size



Style MX0 Single Rod End – Envelope and Mounting Dimensions

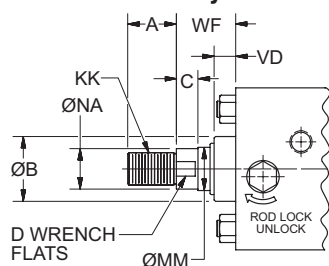
Bore Ø	E	EE NPTF	EF NPTF	F1	G	J	K	N3 Hex	NR (Max.)	R	P Add Stroke
1.50	2.00	3/8	1/8	0.25	1.50	1.00	0.25	5/16	0.24	1.43	2.25
2.00	2.50	3/8	1/8	0.31	1.50	1.00	0.32	1/2	0.32	1.84	2.25
2.50	3.00	3/8	1/8	0.31	1.50	1.00	0.32	1/2	0.32	2.19	2.38
3.25	3.75	1/2	1/4	0.38	1.75	1.25	0.38	5/8	0.41	2.76	2.63
4.00	4.50	1/2	1/4	0.38	1.75	1.25	0.38	7/8	0.55	3.32	2.63
5.00	5.50	1/2	1/4	0.50	1.75	1.25	0.44	7/8	0.55	4.10	2.88
6.00	6.50	3/4	1/4	0.50	2.00	1.50	0.44	1 5/16	0.81	4.88	3.13
8.00	8.50	3/4	1/4	0.63	2.00	1.50	0.56	1 5/16	0.81	6.44	3.25

Style MX0 Single Rod End – Rod Dimensions

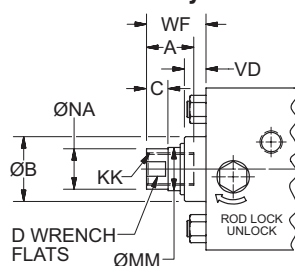
Bore Ø	MM Rod Ø	Thread		Rod Extensions and Pilot Dimensions													LG Add Stroke
		CC Style 4 & 5*	KK Style 2 & 3	A	AC*	B +.000 -.002	C	D	H	N1	N2	NA	Q	VD	WF	Y	
1.50	0.625	1/2-20	7/16-20	0.75	1.13	1.124	0.38	0.50	2.63	0.22	0.14	0.56	0.72	0.38	1.00	4.81	6.50
	1.000	7/8-14	3/4-16	1.13	1.88	1.499	0.50	0.88	3.88	0.34	0.15	0.94	1.07	0.50	1.38	6.50	7.81
2.00	0.625	1/2-20	7/16-20	0.75	1.13	1.124	0.38	0.50	2.88	0.35	0.15	0.56	0.76	0.50	1.00	5.13	6.94
	1.000	7/8-14	3/4-16	1.13	1.88	1.499	0.50	0.88	4.00	0.35	0.15	0.94	1.12	0.50	1.38	6.63	8.06
2.50	0.625	1/2-20	7/16-20	0.75	1.13	1.124	0.38	0.50	2.88	0.35	0.15	0.56	0.76	0.50	1.00	5.13	6.94
	1.000	7/8-14	3/4-16	1.13	1.88	1.499	0.50	0.88	4.00	0.35	0.15	0.94	1.12	0.50	1.38	6.63	8.06
3.25	1.000	7/8-14	3/4-16	1.13	1.88	1.499	0.50	0.88	4.50	0.63	0.18	0.94	1.51	0.50	1.38	7.31	9.13
	1.375	1 1/4-12	1-14	1.63	2.50	1.999	0.63	1.13	4.88	0.81	0.25	1.31	1.65	0.63	1.63	7.94	9.50
4.00	1.000	7/8-14	3/4-16	1.13	1.88	1.499	0.50	0.88	4.88	0.63	0.24	0.94	1.73	0.50	1.38	7.69	9.50
	1.375	1 1/4-12	1-14	1.63	2.50	1.999	0.63	1.13	5.13	0.77	0.28	1.31	1.68	0.75	1.63	8.19	9.75
	1.750	1 1/2-12	1 1/4-12	2.00	3.00	2.374	0.75	1.50	5.50	1.03	0.26	1.69	2.09	0.88	1.88	8.81	10.13
5.00	1.000	7/8-14	3/4-16	1.13	1.88	1.499	0.50	0.88	5.38	0.72	0.22	0.94	2.00	0.50	1.38	8.31	10.38
	1.375	1 1/4-12	1-14	1.63	2.50	1.999	0.63	1.13	5.75	0.72	0.22	1.31	2.33	0.75	1.63	8.94	10.75
	1.750	1 1/2-12	1 1/4-12	2.00	3.00	2.374	0.75	1.50	6.38	1.10	0.22	1.69	2.30	0.88	1.88	9.81	11.38
6.00	1.375	1 1/4-12	1-14	1.63	2.50	1.999	0.63	1.13	6.38	1.17	0.18	1.31	2.71	0.76	1.63	9.69	11.88
	1.750	1 1/2-12	1 1/4-12	2.00	3.00	2.374	0.75	1.50	6.88	1.50	0.18	1.69	3.07	0.88	1.88	10.44	12.38
	2.000	1 3/4-12	1 1/2-12	2.25	3.50	2.624	0.88	1.69	7.00	1.49	0.18	1.94	3.18	1.25	2.00	10.69	12.50
8.00	1.375	1 1/4-12	1-14	1.63	2.50	1.999	0.63	1.13	6.63	1.31	0.18	1.31	2.89	0.76	1.63	10.06	12.38
	1.750	1 1/2-12	1 1/4-12	2.00	3.50	2.374	0.75	1.50	7.13	1.57	0.18	1.69	3.15	0.88	1.88	10.81	12.88
	2.500	2 1/4-12	1 7/8-12	3.00	4.50	3.124	1.00	2.06	7.50	1.22	0.30	2.38	3.15	1.38	2.25	11.56	13.25

Rod End Dimensions

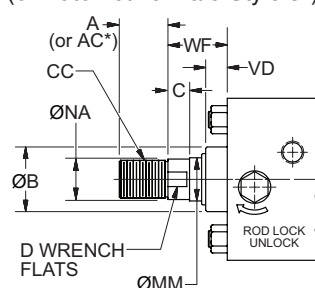
Thread Style 2



Thread Style 3



Thread Style 4 (or Automotive Male Style 5\*)



“Special” Thread Style 0

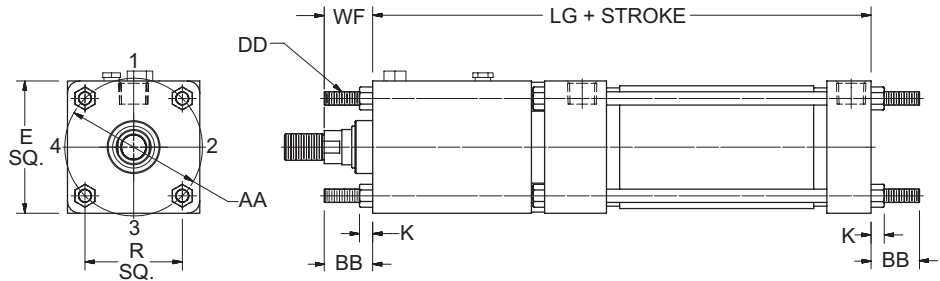
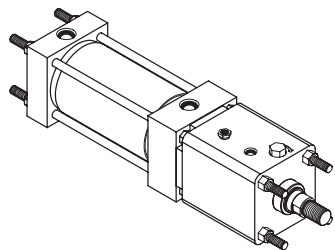
Special thread, extension, rod eye, blank, etc. are also available.

To order, specify “Style 0” and give desired dimensions for KK, A, & WF. If otherwise special furnish dimensional sketch.

\*Thread length AC is supplied with Automotive Male rod end style 5.

Style MX1 – Single Rod End\*

1½" to 8" Bore Size



Style MX1, MX2, MX3 Single Rod End – Envelope and Mounting Dimensions

Bore Ø	AA	BB	DD	E	K	R
1.50	2.02	1.00	1/4-28	2.00	0.25	1.43
2.00	2.60	1.13	5/16-24	2.50	0.31	1.84
2.50	3.10	1.13	5/16-24	3.00	0.31	2.19
3.25	3.90	1.38	3/8-24	3.75	0.38	2.76
4.00	4.70	1.38	3/8-24	4.50	0.38	3.32
5.00	5.80	1.81	1/2-20	5.50	0.44	4.10
6.00	6.90	1.81	1/2-20	6.50	0.44	4.88
8.00	9.10	2.31	5/8-18	8.50	0.31	6.44

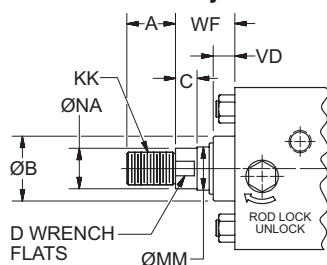
\* Style MX3 – Tie Rods Extended Head End, and Style MX2 – Tie Rods Extended Cap End can be dimensioned from Style MX1 shown.

Style MX1, MX2, MX3 Single Rod End – Rod Dimensions

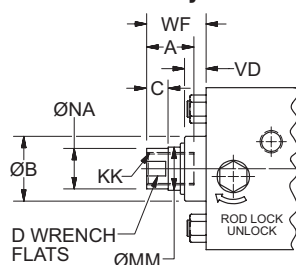
Bore Ø	MM Rod Ø	Thread		Rod Extensions and Pilot Dimensions								LG Add Stroke
		CC Style 4 & 5*	KK Style 2 & 3	A	AC*	B +.000 -.002	C	D	NA	VD	WF	
1.50	0.625	1/2-20	7/16-20	0.75	1.13	1.124	0.38	0.50	0.56	0.38	1.00	6.50
	1.000	7/8-14	3/4-16	1.13	1.88	1.499	0.50	0.88	0.94	0.50	1.38	7.81
2.50	0.625	1/2-20	7/16-20	0.75	1.13	1.124	0.38	0.50	0.56	0.50	1.00	6.94
	1.000	7/8-14	3/4-16	1.13	1.88	1.499	0.50	0.88	0.94	0.50	1.38	8.06
3.25	1.000	7/8-14	3/4-16	1.13	1.88	1.499	0.50	0.88	0.94	0.50	1.38	9.13
	1.375	1 1/4-12	1-14	1.63	2.50	1.999	0.63	1.13	1.31	0.63	1.63	9.50
4.00	1.000	7/8-14	3/4-16	1.13	1.88	1.499	0.50	0.88	0.94	0.50	1.38	9.50
	1.375	1 1/4-12	1-14	1.63	2.50	1.999	0.63	1.13	1.31	0.75	1.63	9.75
	1.750	1 1/2-12	1 1/4-12	2.00	3.00	2.374	0.75	1.50	1.69	0.88	1.88	10.13
5.00	1.000	7/8-14	3/4-16	1.13	1.88	1.499	0.50	0.88	0.94	0.50	1.38	10.38
	1.375	1 1/4-12	1-14	1.63	2.50	1.999	0.63	1.13	1.31	0.75	1.63	10.75
	1.750	1 1/2-12	1 1/4-12	2.00	3.00	2.374	0.75	1.50	1.69	0.88	1.88	11.38
6.00	1.375	1 1/4-12	1-14	1.63	2.50	1.999	0.63	1.13	1.31	0.75	1.63	11.88
	1.750	1 1/2-12	1 1/4-12	2.00	3.00	2.374	0.75	1.50	1.69	0.88	1.88	12.38
	2.000	1 3/4-12	1 1/2-12	2.25	3.50	2.624	0.88	1.69	1.94	1.25	2.00	12.50
8.00	1.375	1 1/4-12	1-14	1.63	2.50	1.999	0.63	1.13	1.31	0.75	1.63	12.38
	1.750	1 1/2-12	1 1/4-12	2.00	3.50	2.374	0.75	1.50	1.69	0.88	1.88	12.88
	2.500	2 1/4-12	1 7/8-12	3.00	4.50	3.124	1.00	2.06	2.38	1.38	2.25	13.25

Rod End Dimensions

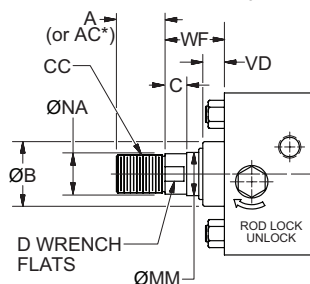
Thread Style 2



Thread Style 3



Thread Style 4 (or Automotive Male Style 5\*)



“Special” Thread Style 0

Special thread, extension, rod eye, blank, etc. are also available.

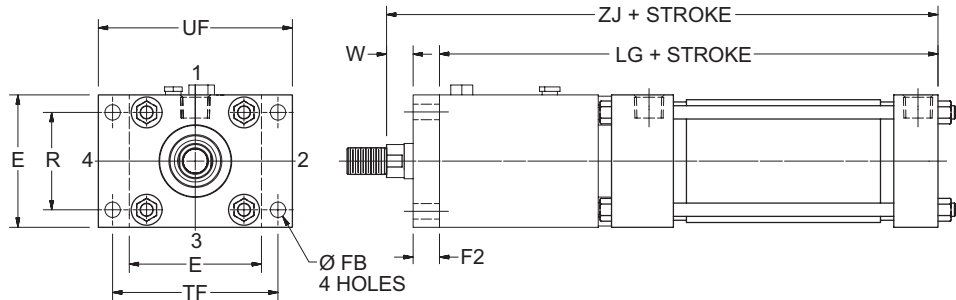
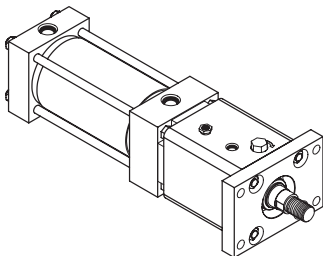
To order, specify “Style 0” and give desired dimensions for KK, A, & WF. If otherwise special furnish dimensional sketch.

\*Thread length AC is supplied with Automotive Male rod end style 5.



Style MF1 – Single Rod End

1½" to 8" Bore Size



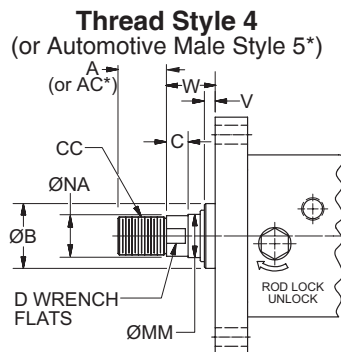
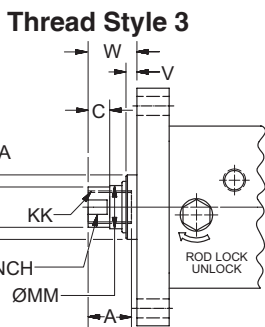
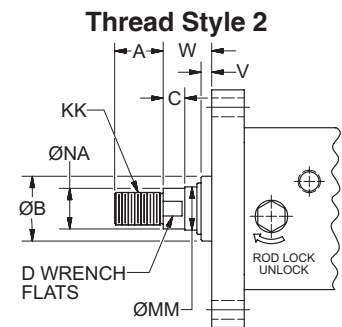
Style MF1 Single Rod End – Envelope and Mounting Dimensions

Bore Ø	E	F2	FB (Bolt)	R	TF	UF
1.50	2.00	0.63	0.25	1.43	2.75	3.38
2.00	2.50	0.63	0.31	1.84	3.38	4.13
2.50	3.00	0.63	0.31	2.19	3.88	4.63
3.25	3.75	0.75	0.38	2.76	4.69	5.50
4.00	4.50	0.75	0.38	3.32	5.44	6.25
5.00	5.50	0.75	0.50	4.10	6.63	7.63
6.00	6.50	0.75	0.50	4.88	7.63	8.63
8.00	8.50	1.00	0.63	6.44	9.75	11.00

Style MF1 Single Rod End – Rod Dimensions

Bore Ø	MM Rod Ø	Thread		Rod Extensions and Pilot Dimensions								Add Stroke	
		CC Style 4 & 5*	KK Style 2 & 3	A	AC*	B +.000 - .002	C	D	NA	V	W	LG	ZJ
1.50	0.625	1/2-20	7/16-20	0.75	1.13	1.124	0.38	0.50	0.56	–	0.63	6.50	7.75
	1.000	7/8-14	3/4-16	1.13	1.88	1.499	0.50	0.88	0.94	–	1.00	7.81	9.44
2.00	0.625	1/2-20	7/16-20	0.75	1.13	1.124	0.38	0.50	0.56	–	0.63	6.81	8.06
	1.000	7/8-14	3/4-16	1.13	1.88	1.499	0.50	0.88	0.94	–	1.00	7.81	9.44
2.50	0.625	1/2-20	7/16-20	0.75	1.13	1.124	0.38	0.50	0.56	–	0.63	6.94	8.19
	1.000	7/8-14	3/4-16	1.13	1.88	1.499	0.50	0.88	0.94	–	1.00	8.06	9.69
3.25	1.000	7/8-14	3/4-16	1.13	1.88	1.499	0.50	0.88	0.94	–	0.75	9.13	10.63
	1.375	1 1/4-12	1-14	1.63	2.50	1.999	0.63	1.13	1.31	–	1.00	9.50	11.25
4.00	1.000	7/8-14	3/4-16	1.13	1.88	1.499	0.50	0.88	0.94	–	0.75	9.50	11.00
	1.375	1 1/4-12	1-14	1.63	2.50	1.999	0.63	1.13	1.31	–	1.00	9.75	11.50
	1.750	1 1/2-12	1 1/4-12	2.00	3.00	2.374	0.75	1.50	1.69	0.13	1.25	10.13	12.13
5.00	1.000	7/8-14	3/4-16	1.13	1.88	1.499	0.50	0.88	0.94	–	0.75	10.38	11.88
	1.375	1 1/4-12	1-14	1.63	2.50	1.999	0.63	1.13	1.31	–	1.00	10.75	12.50
	1.750	1 1/2-12	1 1/4-12	2.00	3.00	2.374	0.75	1.50	1.69	0.13	1.25	11.38	13.38
6.00	1.375	1 1/4-12	1-14	1.63	2.50	1.999	0.63	1.13	1.31	–	0.88	11.88	13.50
	1.750	1 1/2-12	1 1/4-12	2.00	3.00	2.374	0.75	1.50	1.69	0.13	1.13	12.38	14.25
	2.000	1 3/4-12	1 1/2-12	2.25	3.50	2.624	0.88	1.69	1.94	0.50	1.25	12.50	14.50
8.00	1.375	1 1/4-12	1-14	1.63	2.50	1.999	0.63	1.13	1.31	–	0.88	12.38	14.25
	1.750	1 1/2-12	1 1/4-12	2.00	3.50	2.374	0.75	1.50	1.69	–	1.13	12.88	15.00
	2.500	2 1/4-12	1 7/8-12	3.00	4.50	3.124	1.00	2.06	2.38	0.38	1.50	13.25	15.75

Rod End Dimensions

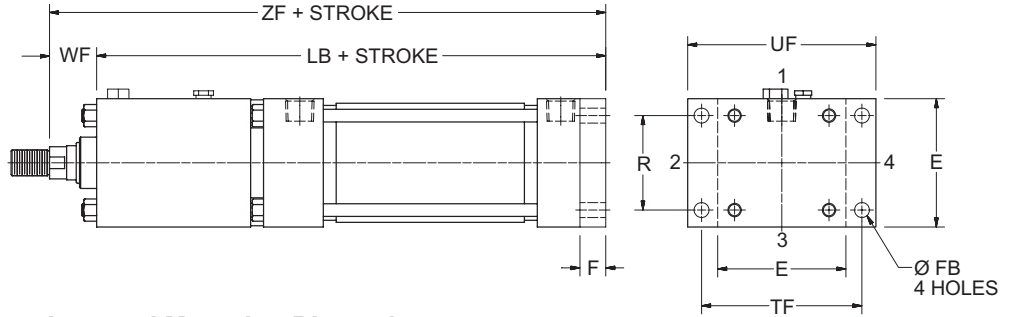
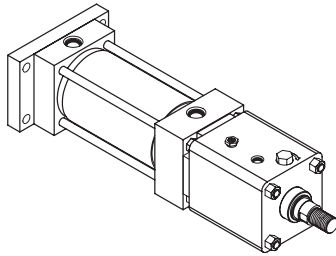


“Special” Thread Style 0

Special thread, extension, rod eye, blank, etc. are also available. To order, specify “Style 0” and give desired dimensions for KK, A, & W. If otherwise special furnish dimensional sketch.

\*Thread length AC is supplied with Automotive Male rod end style 5.

Style MF2 – Single Rod End  
1½" to 8" Bore Size



Style MF2 Single Rod End – Envelope and Mounting Dimensions

Bore Ø	E	F	FB (Bolt)	R	TF	UF
1.50	2.00	0.38	0.25	1.43	2.75	3.38
2.00	2.50	0.38	0.31	1.84	3.38	4.13
2.50	3.00	0.38	0.31	2.19	3.88	4.63
3.25	3.75	0.63	0.38	2.76	4.69	5.50
4.00	4.50	0.63	0.38	3.32	5.44	6.25
5.00	5.50	0.63	0.50	4.10	6.63	7.63
6.00	6.50	0.75	0.50	4.88	7.63	8.63
8.00	8.50	–	0.69*	7.57*	7.57*	8.50*

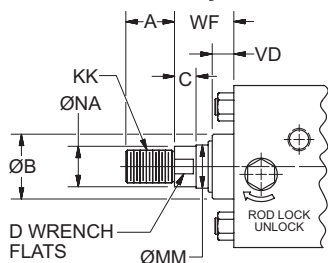
\* Style ME4 Square Cap mount supplied in 8" bore.

Style MF2 Single Rod End – Rod Dimensions

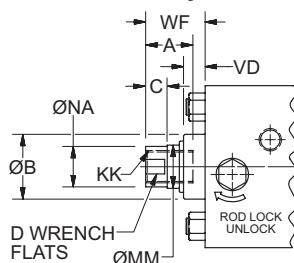
Bore Ø	MM Rod Ø	Thread		Rod Extensions and Pilot Dimensions								Add Stroke	
		CC Style 4 & 5*	KK Style 2 & 3	A	AC*	B +.000 - .002	C	D	NA	VD	WF	LB	ZF
1.50	0.625	1/2-20	7/16-20	0.75	1.13	1.124	0.38	0.50	0.56	0.38	1.00	6.88	7.88
	2.00	1/2-20	7/16-20	0.75	1.13	1.124	0.38	0.50	0.56	0.38	1.00	7.19	8.19
2.00	1.000	7/8-14	3/4-16	1.13	1.88	1.499	0.50	0.88	0.94	0.50	1.38	8.19	9.56
	2.50	1/2-20	7/16-20	0.75	1.13	1.124	0.38	0.50	0.56	0.50	1.00	7.31	8.31
2.50	1.000	7/8-14	3/4-16	1.13	1.88	1.499	0.50	0.88	0.94	0.50	1.38	8.44	9.81
	3.25	7/8-14	3/4-16	1.13	1.88	1.499	0.50	0.88	0.94	0.50	1.38	9.75	11.13
3.25	1.375	1 1/4-12	1-14	1.63	2.50	1.999	0.63	1.13	1.31	0.63	1.63	10.13	11.75
	4.00	7/8-14	3/4-16	1.13	1.88	1.499	0.50	0.88	0.94	0.50	1.38	10.13	11.50
4.00	1.375	1 1/4-12	1-14	1.63	2.50	1.999	0.63	1.13	1.31	0.75	1.63	10.38	12.00
	1.750	1 1/2-12	1 1/4-12	2.00	3.00	2.374	0.75	1.50	1.69	0.88	1.88	10.75	12.63
5.00	1.000	7/8-14	3/4-16	1.13	1.88	1.499	0.50	0.88	0.94	0.50	1.38	11.00	12.38
	1.375	1 1/4-12	1-14	1.63	2.50	1.999	0.63	1.13	1.31	0.75	1.63	11.38	13.00
5.00	1.750	1 1/2-12	1 1/4-12	2.00	3.00	2.374	0.75	1.50	1.69	0.88	1.88	12.00	13.88
	6.00	1 1/4-12	1-14	1.63	2.50	1.999	0.63	1.13	1.31	0.75	1.63	12.63	14.25
6.00	1.750	1 1/2-12	1 1/4-12	2.00	3.00	2.374	0.75	1.50	1.69	0.88	1.88	13.13	15.00
	2.000	1 3/4-12	1 1/2-12	2.25	3.50	2.624	0.88	1.69	1.94	1.25	2.00	13.25	15.25
8.00	1.375	1 1/4-12	1-14	1.63	2.50	1.999	0.63	1.13	1.31	0.75	1.63	12.38*	14.00*
	1.750	1 1/2-12	1 1/4-12	2.00	3.50	2.374	0.75	1.50	1.69	0.88	1.88	12.88*	14.25*
8.00	2.500	2 1/4-12	1 7/8-12	3.00	4.50	3.124	1.00	2.06	2.38	1.38	2.25	13.25*	15.50*

Rod End Dimensions

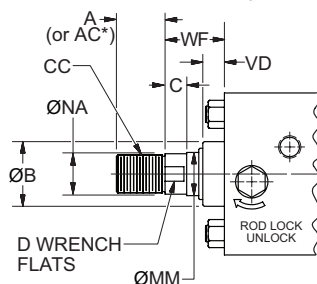
Thread Style 2



Thread Style 3



Thread Style 4 (or Automotive Male Style 5\*)



“Special” Thread Style 0

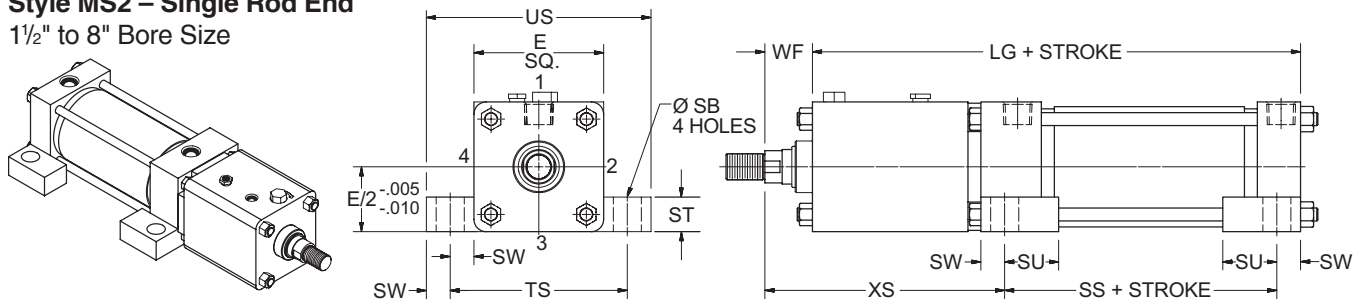
Special thread, extension, rod eye, blank, etc. are also available.

To order, specify “Style 0” and give desired dimensions for KK, A, & WF. If otherwise special furnish dimensional sketch.

\*Thread length AC is supplied with Automotive Male rod end style 5.

**Style MS2 – Single Rod End**

1½" to 8" Bore Size



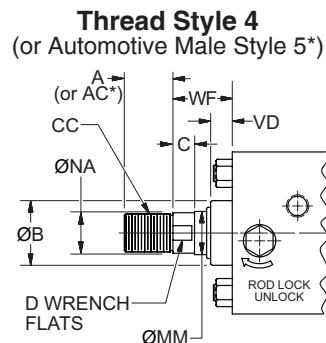
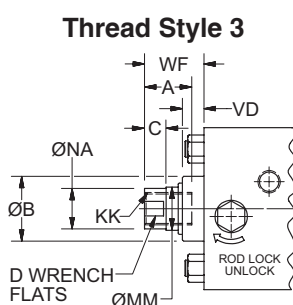
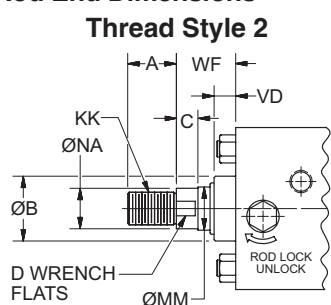
**Style MS2 Single Rod End – Envelope and Mounting Dimensions**

Bore Ø	E	SB (Bolt)	ST	SU	SW	TS	US	SS Add Stroke
1.50	2.00	0.38	0.50	0.94	0.38	2.75	3.50	2.88
2.00	2.50	0.38	0.50	0.94	0.38	3.25	4.00	2.88
2.50	3.00	0.38	0.50	0.94	0.38	3.75	4.50	3.00
3.25	3.75	0.50	0.75	1.25	0.50	4.75	5.75	3.25
4.00	4.50	0.50	0.75	1.25	0.50	5.50	6.50	3.25
5.00	5.50	0.75	1.00	1.56	0.69	6.88	8.25	3.13
6.00	6.50	0.75	1.00	1.56	0.69	7.88	9.25	3.63
8.00	8.50	0.75	1.00	1.56	0.69	9.88	11.25	3.75

**Style MS2 Single Rod End – Rod Dimensions**

Bore Ø	MM Rod Ø	Thread		Rod Extensions and Pilot Dimensions									LG Add Stroke
		CC Style 4 & 5*	KK Style 2 & 3	A	AC*	B +.000 -0.002	C	D	NA	VD	WF	XS	
1.50	0.625	1/2-20	7/16-20	0.75	1.13	1.124	0.38	0.50	0.56	0.38	1.00	4.25	6.50
	1.000	7/8-14	3/4-16	1.13	1.88	1.499	0.50	0.88	0.94	0.50	1.38	5.94	7.81
2.50	0.625	1/2-20	7/16-20	0.75	1.13	1.124	0.38	0.50	0.56	0.50	1.00	4.56	6.94
	1.000	7/8-14	3/4-16	1.13	1.88	1.499	0.50	0.88	0.94	0.50	1.38	6.06	8.06
3.25	1.000	7/8-14	3/4-16	1.13	1.88	1.499	0.50	0.88	0.94	0.50	1.38	6.75	9.13
	1.375	1 1/4-12	1-14	1.63	2.50	1.999	0.63	1.13	1.31	0.63	1.63	7.38	9.50
4.00	1.000	7/8-14	3/4-16	1.13	1.88	1.499	0.50	0.88	0.94	0.50	1.38	7.13	9.50
	1.375	1 1/4-12	1-14	1.63	2.50	1.999	0.63	1.13	1.31	0.75	1.63	7.63	9.75
	1.750	1 1/2-12	1 1/4-12	2.00	3.00	2.374	0.75	1.50	1.69	0.88	1.88	8.25	10.13
5.00	1.000	7/8-14	3/4-16	1.13	1.88	1.499	0.50	0.88	0.94	0.50	1.38	7.94	10.38
	1.375	1 1/4-12	1-14	1.63	2.50	1.999	0.63	1.13	1.31	0.75	1.63	8.56	10.75
	1.750	1 1/2-12	1 1/4-12	2.00	3.00	2.374	0.75	1.50	1.69	0.88	1.88	9.44	11.38
6.00	1.375	1 1/4-12	1-14	1.63	2.50	1.999	0.63	1.13	1.31	0.75	1.63	9.19	11.88
	1.750	1 1/2-12	1 1/4-12	2.00	3.00	2.374	0.75	1.50	1.69	0.88	1.88	9.94	12.38
	2.000	1 3/4-12	1 1/2-12	2.25	3.50	2.624	0.88	1.69	1.94	1.25	2.00	10.19	12.50
8.00	1.375	1 1/4-12	1-14	1.63	2.50	1.999	0.63	1.13	1.31	0.75	1.63	9.56	12.38
	1.750	1 1/2-12	1 1/4-12	2.00	3.50	2.374	0.75	1.50	1.69	0.88	1.88	10.31	12.88
	2.500	2 1/4-12	1 7/8-12	3.00	4.50	3.124	1.00	2.06	2.38	1.38	2.25	11.06	13.25

**Rod End Dimensions**



**“Special” Thread Style 0**

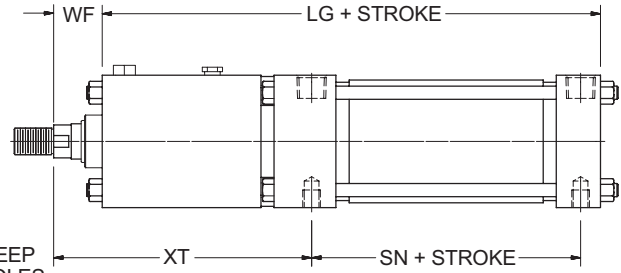
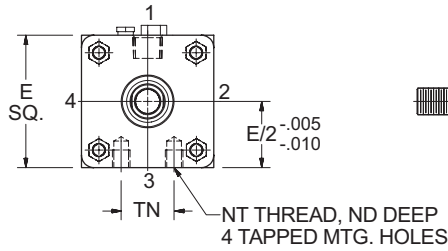
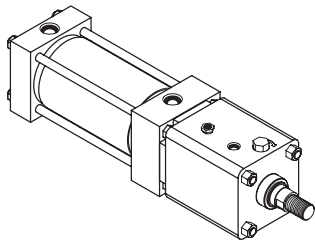
Special thread, extension, rod eye, blank, etc. are also available.

To order, specify “Style 0” and give desired dimensions for KK, A, & WF. If otherwise special furnish dimensional sketch.

\*Thread length AC is supplied with Automotive Male rod end style 5.

**Style MS4 – Single Rod End**

1½" to 8" Bore Size



**Style MS4 Single Rod End – Envelope and Mounting Dimensions**

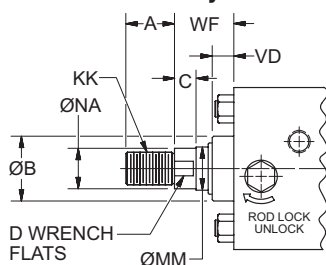
Bore Ø	E	ND	NT	TN	SN Add Stroke
1.50	2.00	0.31	1/4-20	0.63	2.25
2.00	2.50	0.34	5/16-18	0.88	2.25
2.50	3.00	0.44	3/8-16	1.25	2.38
3.25	3.75	0.50	1/2-13	1.50	2.63
4.00	4.50	0.63	1/2-13	2.06	2.63
5.00	5.50	0.75	5/8-11	2.69	2.88
6.00	6.50	0.88	3/4-10	3.25	3.13
8.00	8.50	1.13	3/4-10	4.25	3.25

**Style MS4 Single Rod End – Rod Dimensions**

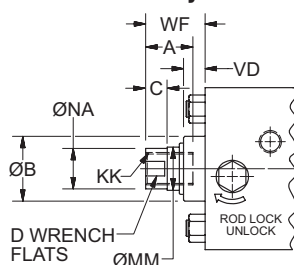
Bore Ø	MM Rod Ø	Thread		Rod Extensions and Pilot Dimensions									LG Add Stroke
		CC Style 4 & 5*	KK Style 2 & 3	A	AC*	B +.000 -0.002	C	D	NA	VD	WF	XT	
1.50	0.625	1/2-20	7/16-20	0.75	1.13	1.124	0.38	0.50	0.56	0.38	1.00	4.81	6.50
	1.000	7/8-14	3/4-16	1.13	1.88	1.499	0.50	0.88	0.94	0.50	1.38	6.50	7.81
2.50	0.625	1/2-20	7/16-20	0.75	1.13	1.124	0.38	0.50	0.56	0.50	1.00	5.13	6.94
	1.000	7/8-14	3/4-16	1.13	1.88	1.499	0.50	0.88	0.94	0.50	1.38	6.63	8.06
3.25	1.000	7/8-14	3/4-16	1.13	1.88	1.499	0.50	0.88	0.94	0.50	1.38	7.31	9.13
	1.375	1 1/4-12	1-14	1.63	2.50	1.999	0.63	1.13	1.31	0.63	1.63	7.94	9.50
4.00	1.000	7/8-14	3/4-16	1.13	1.88	1.499	0.50	0.88	0.94	0.50	1.38	7.69	9.50
	1.375	1 1/4-12	1-14	1.63	2.50	1.999	0.63	1.13	1.31	0.75	1.63	8.19	9.75
	1.750	1 1/2-12	1 1/4-12	2.00	3.00	2.374	0.75	1.50	1.69	0.88	1.88	8.81	10.13
5.00	1.000	7/8-14	3/4-16	1.13	1.88	1.499	0.50	0.88	0.94	0.50	1.38	8.31	10.38
	1.375	1 1/4-12	1-14	1.63	2.50	1.999	0.63	1.13	1.31	0.75	1.63	8.94	10.75
	1.750	1 1/2-12	1 1/4-12	2.00	3.00	2.374	0.75	1.50	1.69	0.88	1.88	9.81	11.38
6.00	1.375	1 1/4-12	1-14	1.63	2.50	1.999	0.63	1.13	1.31	0.75	1.63	9.69	11.88
	1.750	1 1/2-12	1 1/4-12	2.00	3.00	2.374	0.75	1.50	1.69	0.88	1.88	10.44	12.38
	2.000	1 3/4-12	1 1/2-12	2.25	3.50	2.624	0.88	1.69	1.94	1.25	2.00	10.69	12.50
8.00	1.375	1 1/4-12	1-14	1.63	2.50	1.999	0.63	1.13	1.31	0.75	1.63	10.06	12.38
	1.750	1 1/2-12	1 1/4-12	2.00	3.50	2.374	0.75	1.50	1.69	0.88	1.88	10.81	12.88
	2.500	2 1/4-12	1 7/8-12	3.00	4.50	3.124	1.00	2.06	2.38	1.38	2.25	11.56	13.25

**Rod End Dimensions**

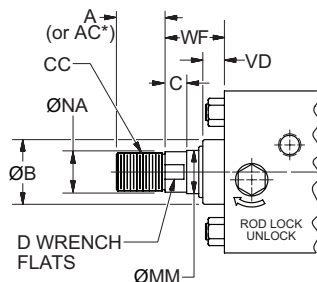
**Thread Style 2**



**Thread Style 3**



**Thread Style 4 (or Automotive Male Style 5\*)**



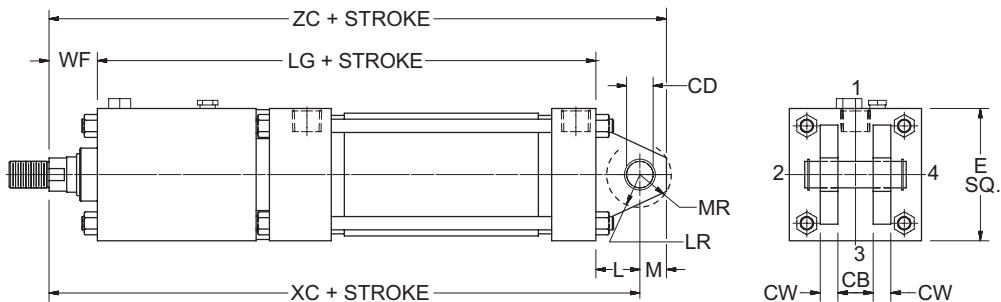
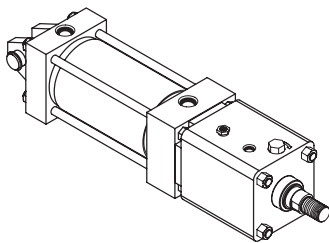
**“Special” Thread Style 0**

Special thread, extension, rod eye, blank, etc. are also available.

To order, specify “Style 0” and give desired dimensions for KK, A, & WF. If otherwise special furnish dimensional sketch.

\*Thread length AC is supplied with Automotive Male rod end style 5.

Style MP1 – Single Rod End  
1½" to 8" Bore Size



Style MP1 Single Rod End – Envelope and Mounting Dimensions

Bore Ø	CB	CD * +0.000 -0.002	CW	E	L	LR	M	MR
1.50	0.75	0.501	0.50	2.00	0.75	0.75	0.50	0.63
2.00	0.75	0.501	0.50	2.50	0.75	0.75	0.50	0.63
2.50	0.75	0.501	0.50	3.00	0.75	0.75	0.50	0.63
3.25	1.25	0.751	0.63	3.75	1.25	1.00	0.75	0.94
4.00	1.25	0.751	0.63	4.50	1.25	1.00	0.75	0.94
5.00	1.25	0.751	0.63	5.50	1.25	1.00	0.75	0.94
6.00	1.50	1.001	0.75	6.50	1.50	1.25	1.00	1.19
8.00	1.50	1.001	0.75	8.50	1.50	1.25	1.00	1.19

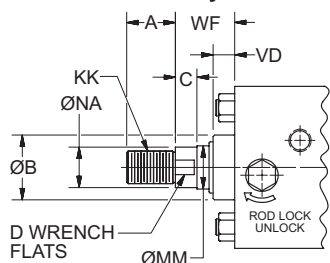
\* Dimension CD is pin diameter.

Style MP1 Single Rod End – Rod Dimensions

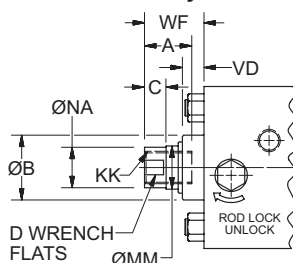
Bore Ø	MM Rod Ø	Thread		Rod Extensions and Pilot Dimensions								Add Stroke		
		CC Style 4 & 5*	KK Style 2 & 3	A	AC*	B +0.000 -0.002	C	D	NA	VD	WF	LG	XC	ZC
1.50	0.625	1/2-20	7/16-20	0.75	1.13	1.124	0.38	0.50	0.56	0.38	1.00	6.50	8.25	8.75
	0.625	1/2-20	7/16-20	0.75	1.13	1.124	0.38	0.50	0.56	0.38	1.00	6.81	8.56	9.06
2.00	1.000	7/8-14	3/4-16	1.13	1.88	1.499	0.50	0.88	0.94	0.50	1.38	7.81	9.94	10.44
	0.625	1/2-20	7/16-20	0.75	1.13	1.124	0.38	0.50	0.56	0.50	1.00	6.94	8.69	9.19
2.50	1.000	7/8-14	3/4-16	1.13	1.88	1.499	0.50	0.88	0.94	0.50	1.38	8.06	10.19	10.69
	0.625	1/2-20	7/16-20	0.75	1.13	1.124	0.38	0.50	0.56	0.50	1.00	6.94	8.69	9.19
3.25	1.000	7/8-14	3/4-16	1.13	1.88	1.499	0.50	0.88	0.94	0.50	1.38	9.13	11.75	12.50
	1.375	1 1/4-12	1-14	1.63	2.50	1.999	0.63	1.13	1.31	0.63	1.63	9.50	12.38	13.13
4.00	1.000	7/8-14	3/4-16	1.13	1.88	1.499	0.50	0.88	0.94	0.50	1.38	9.50	12.13	12.88
	1.375	1 1/4-12	1-14	1.63	2.50	1.999	0.63	1.13	1.31	0.75	1.63	9.75	12.63	13.38
5.00	1.750	1 1/2-12	1 1/4-12	2.00	3.00	2.374	0.75	1.50	1.69	0.88	1.88	10.13	13.25	14.00
	1.000	7/8-14	3/4-16	1.13	1.88	1.499	0.50	0.88	0.94	0.50	1.38	10.38	13.00	13.75
6.00	1.375	1 1/4-12	1-14	1.63	2.50	1.999	0.63	1.13	1.31	0.75	1.63	10.75	13.63	14.38
	1.750	1 1/2-12	1 1/4-12	2.00	3.00	2.374	0.75	1.50	1.69	0.88	1.88	11.38	14.50	15.25
8.00	1.750	1 1/2-12	1 1/4-12	2.00	3.00	2.374	0.75	1.50	1.69	0.88	1.88	11.88	15.00	16.00
	2.000	1 3/4-12	1 1/2-12	2.25	3.50	2.624	0.88	1.69	1.94	1.25	2.00	12.38	15.75	16.75
8.00	1.375	1 1/4-12	1-14	1.63	2.50	1.999	0.63	1.13	1.31	0.75	1.63	12.38	15.50	16.50
	1.750	1 1/2-12	1 1/4-12	2.00	3.50	2.374	0.75	1.50	1.69	0.88	1.88	12.88	16.25	17.25
	2.500	2 1/4-12	1 7/8-12	3.00	4.50	3.124	1.00	2.06	2.38	1.38	2.25	13.25	17.00	18.00

Rod End Dimensions

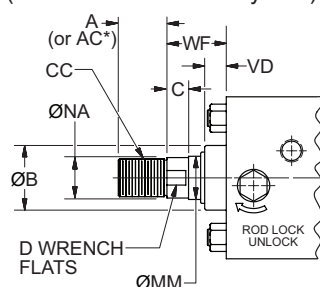
Thread Style 2



Thread Style 3



Thread Style 4  
(or Automotive Male Style 5\*)



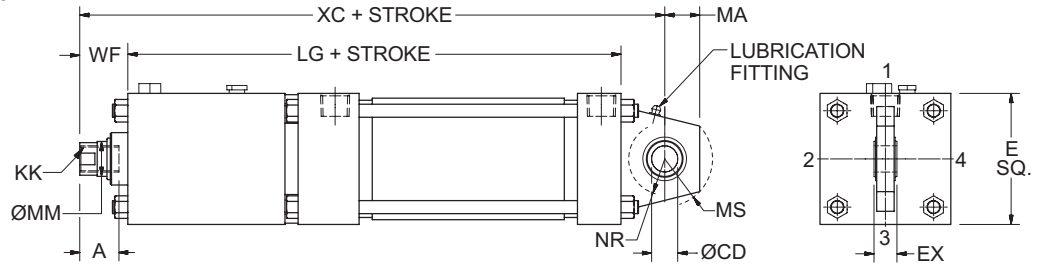
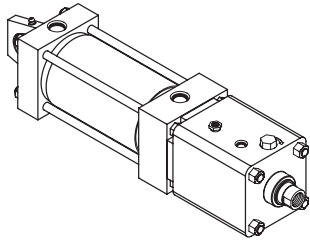
“Special” Thread Style 0

Special thread, extension, rod eye, blank, etc. are also available.

To order, specify “Style 0” and give desired dimensions for KK, A, & WF. If otherwise special furnish dimensional sketch.

\*Thread length AC is supplied with Automotive Male rod end style 5.

**Style MPU3 – Single Rod End**  
1½" to 8" Bore Size



**Style MPU3 Single Rod End – Envelope and Mounting Dimensions**

Bore Ø	CD * +.0000 -.0005	E	EX	MA	MS	NR
1.50	0.5000	2.00	0.44	0.75	0.94	0.63
2.00	0.5000	2.50	0.44	0.75	0.94	0.63
2.50	0.5000	3.00	0.44	0.75	0.94	0.63
3.25	0.7500	3.75	0.66	1.00	1.38	1.00
4.00	0.7500	4.50	0.66	1.00	1.38	1.00
5.00	0.7500	5.50	0.66	1.00	1.38	1.00
6.00	1.0000	6.50	0.88	1.25	1.69	1.25
8.00	1.0000	8.50	0.88	1.25	1.69	1.25

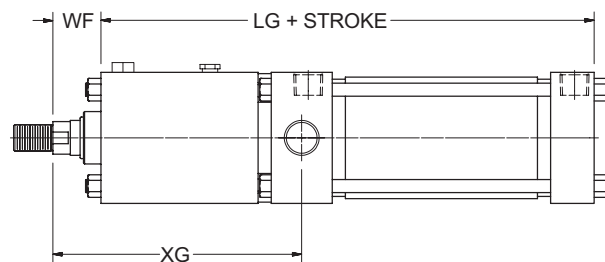
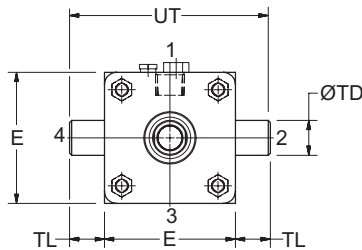
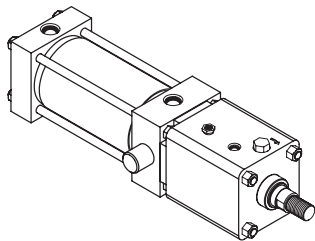
\* Dimension CD is hole diameter.

**Style MPU3 Single Rod End – Rod Dimensions**

Bore Ø	MM Rod Ø	Thread		A	WF	Add Stroke	
		KK Style 3	KK Style 7			LG	XC
1.50	0.625	7/16-20	–	0.75	1.00	6.50	8.25
2.00	0.625	7/16-20	–	0.75	1.00	6.81	8.56
	1.000	–	7/16-20	1.13	1.38	7.81	9.94
2.50	0.625	7/16-20	–	0.75	1.00	6.94	8.69
	1.000	–	7/16-20	1.13	1.38	8.06	10.19
3.25	1.000	3/4-16	–	1.13	1.38	9.13	11.75
	1.375	–	3/4-16	1.63	1.63	9.50	12.38
4.00	1.000	3/4-16	–	1.13	1.38	9.50	12.13
	1.375	–	3/4-16	1.63	1.63	9.75	12.63
	1.750	–	3/4-16	2.00	1.88	10.13	13.25
5.00	1.000	3/4-16	–	1.13	1.38	10.38	13.00
	1.375	–	3/4-16	1.63	1.63	10.75	13.63
	1.750	–	3/4-16	2.00	1.88	11.38	14.50
6.00	1.375	1-14	–	1.63	1.63	11.88	15.00
	1.750	–	1-14	2.00	1.88	12.38	15.75
	2.000	–	1-14	2.25	2.00	12.50	16.00
8.00	1.375	1-14	–	1.63	1.63	12.38	15.50
	1.750	–	1-14	2.00	1.88	12.88	16.25
	2.500	–	1-14	3.00	2.25	13.25	17.00

Style MT1 – Single Rod End

1½" to 8" Bore Size



Style MT1 Single Rod End – Envelope and Mounting Dimensions

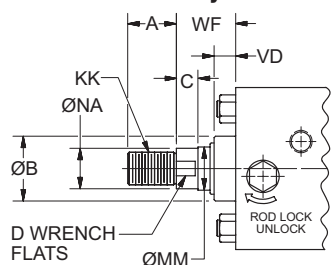
Bore Ø	E	TD +.000 -.001	TL	UT
1.50	2.00	1.000	1.00	4.00
2.00	2.50	1.000	1.00	4.50
2.50	3.00	1.000	1.00	5.00
3.25	3.75	1.000	1.00	5.75
4.00	4.50	1.000	1.00	6.50
5.00	5.50	1.000	1.00	7.50
6.00	6.50	1.375	1.38	9.25
8.00	8.50	1.375	1.38	11.25

Style MT1 Single Rod End – Rod Dimensions

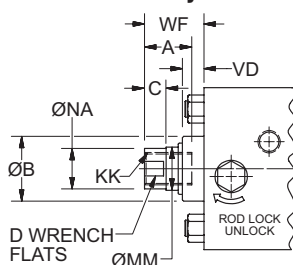
Bore Ø	MM Rod Ø	Thread		Rod Extensions and Pilot Dimensions									LG Add Stroke
		CC Style 4 & 5*	KK Style 2 & 3	A	AC*	B +.000 -.002	C	D	NA	VD	WF	XG	
1.50	0.625	1/2-20	7/16-20	0.75	1.13	1.124	0.38	0.50	0.56	0.38	1.00	4.63	6.50
2.00	0.625	1/2-20	7/16-20	0.75	1.13	1.124	0.38	0.50	0.56	0.38	1.00	4.94	6.81
2.00	1.000	7/8-14	3/4-16	1.13	1.88	1.499	0.50	0.88	0.94	0.50	1.38	6.31	7.81
2.50	0.625	1/2-20	7/16-20	0.75	1.13	1.124	0.38	0.50	0.56	0.50	1.00	4.94	6.94
2.50	1.000	7/8-14	3/4-16	1.13	1.88	1.499	0.50	0.88	0.94	0.50	1.38	6.44	8.06
3.25	1.000	7/8-14	3/4-16	1.13	1.88	1.499	0.50	0.88	0.94	0.50	1.38	7.13	9.13
3.25	1.375	1 1/4-12	1-14	1.63	2.50	1.999	0.63	1.13	1.31	0.63	1.63	7.75	9.50
4.00	1.000	7/8-14	3/4-16	1.13	1.88	1.499	0.50	0.88	0.94	0.50	1.38	7.50	9.50
4.00	1.375	1 1/4-12	1-14	1.63	2.50	1.999	0.63	1.13	1.31	0.75	1.63	8.00	9.75
4.00	1.750	1 1/2-12	1 1/4-12	2.00	3.00	2.374	0.75	1.50	1.69	0.88	1.88	8.63	10.13
5.00	1.000	7/8-14	3/4-16	1.13	1.88	1.499	0.50	0.88	0.94	0.50	1.38	8.13	10.38
5.00	1.375	1 1/4-12	1-14	1.63	2.50	1.999	0.63	1.13	1.31	0.75	1.63	8.75	10.75
5.00	1.750	1 1/2-12	1 1/4-12	2.00	3.00	2.374	0.75	1.50	1.69	0.88	1.88	9.63	11.38
6.00	1.375	1 1/4-12	1-14	1.63	2.50	1.999	0.63	1.13	1.31	0.75	1.63	9.50	11.88
6.00	1.750	1 1/2-12	1 1/4-12	2.00	3.00	2.374	0.75	1.50	1.69	0.88	1.88	10.25	12.38
6.00	2.000	1 3/4-12	1 1/2-12	2.25	3.50	2.624	0.88	1.69	1.94	1.25	2.00	10.50	12.50
8.00	1.375	1 1/4-12	1-14	1.63	2.50	1.999	0.63	1.13	1.31	0.75	1.63	9.88	12.38
8.00	1.750	1 1/2-12	1 1/4-12	2.00	3.50	2.374	0.75	1.50	1.69	0.88	1.88	10.63	12.88
8.00	2.500	2 1/4-12	1 7/8-12	3.00	4.50	3.124	1.00	2.06	2.38	1.38	2.25	11.38	13.25

Rod End Dimensions

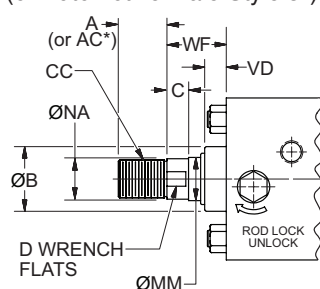
Thread Style 2



Thread Style 3



Thread Style 4  
(or Automotive Male Style 5\*)



“Special”  
Thread Style 0

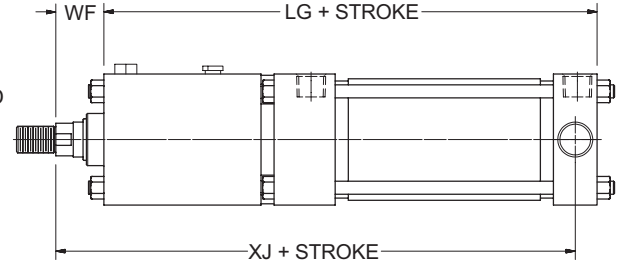
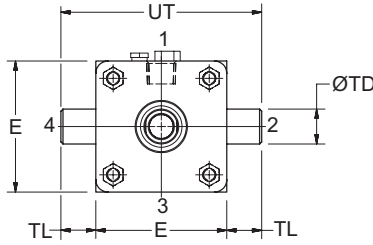
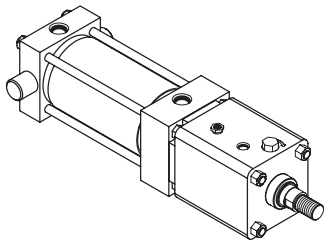
Special thread, extension, rod eye, blank, etc. are also available.

To order, specify “Style 0” and give desired dimensions for KK, A, & WF. If otherwise special furnish dimensional sketch.

\*Thread length AC is supplied with Automotive Male rod end style 5.

**Style MT2 – Single Rod End**

1½" to 8" Bore Size



**Style MT2 Single Rod End – Envelope and Mounting Dimensions**

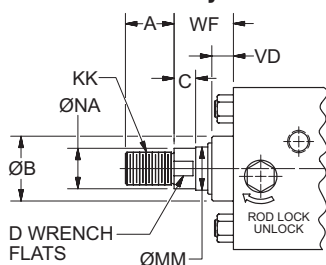
Bore Ø	E	TD +.000 -.001	TL	UT
1.50	2.00	1.000	1.00	4.00
2.00	2.50	1.000	1.00	4.50
2.50	3.00	1.000	1.00	5.00
3.25	3.75	1.000	1.00	5.75
4.00	4.50	1.000	1.00	6.50
5.00	5.50	1.000	1.00	7.50
6.00	6.50	1.375	1.38	9.25
8.00	8.50	1.375	1.38	11.25

**Style MT2 Single Rod End – Rod Dimensions**

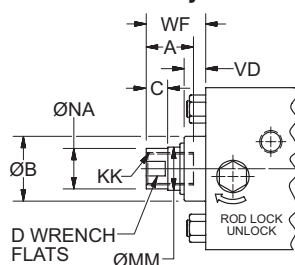
Bore Ø	MM Rod Ø	Thread		Rod Extensions and Pilot Dimensions								Add Stroke	
		CC Style 4 & 5*	KK Style 2 & 3	A	AC*	B +.000 -.002	C	D	NA	VD	WF	LG	XJ
1.50	0.625	1/2-20	7/16-20	0.75	1.13	1.124	0.38	0.50	0.56	0.38	1.00	6.50	7.00
	2.00	0.625	1/2-20	7/16-20	0.75	1.13	1.124	0.38	0.50	0.56	0.38	1.00	6.81
2.00	1.000	7/8-14	3/4-16	1.13	1.88	1.499	0.50	0.88	0.94	0.50	1.38	7.81	8.69
	2.50	0.625	1/2-20	7/16-20	0.75	1.13	1.124	0.38	0.50	0.56	0.50	1.00	6.94
2.50	1.000	7/8-14	3/4-16	1.13	1.88	1.499	0.50	0.88	0.94	0.50	1.38	8.06	8.94
	3.25	1.000	7/8-14	3/4-16	1.13	1.88	1.499	0.50	0.88	0.94	0.50	1.38	9.13
3.25	1.375	1 1/4-12	1-14	1.63	2.50	1.999	0.63	1.13	1.31	0.63	1.63	9.50	10.50
	4.00	1.000	7/8-14	3/4-16	1.13	1.88	1.499	0.50	0.88	0.94	0.50	1.38	9.50
4.00	1.375	1 1/4-12	1-14	1.63	2.50	1.999	0.63	1.13	1.31	0.75	1.63	9.75	10.75
	1.750	1 1/2-12	1 1/4-12	2.00	3.00	2.374	0.75	1.50	1.69	0.88	1.88	10.13	11.38
5.00	1.000	7/8-14	3/4-16	1.13	1.88	1.499	0.50	0.88	0.94	0.50	1.38	10.38	11.13
	1.375	1 1/4-12	1-14	1.63	2.50	1.999	0.63	1.13	1.31	0.75	1.63	10.75	11.75
5.00	1.750	1 1/2-12	1 1/4-12	2.00	3.00	2.374	0.75	1.50	1.69	0.88	1.88	11.38	12.63
	6.00	1.375	1 1/4-12	1-14	1.63	2.50	1.999	0.63	1.13	1.31	0.75	1.63	11.88
6.00	1.750	1 1/2-12	1 1/4-12	2.00	3.00	2.374	0.75	1.50	1.69	0.88	1.88	12.38	13.50
	2.000	1 3/4-12	1 1/2-12	2.25	3.50	2.624	0.88	1.69	1.94	1.25	2.00	12.50	13.75
8.00	1.375	1 1/4-12	1-14	1.63	2.50	1.999	0.63	1.13	1.31	0.75	1.63	12.38	13.25
	1.750	1 1/2-12	1 1/4-12	2.00	3.50	2.374	0.75	1.50	1.69	0.88	1.88	12.88	14.00
8.00	2.500	2 1/4-12	1 7/8-12	3.00	4.50	3.124	1.00	2.06	2.38	1.38	2.25	13.25	14.75

**Rod End Dimensions**

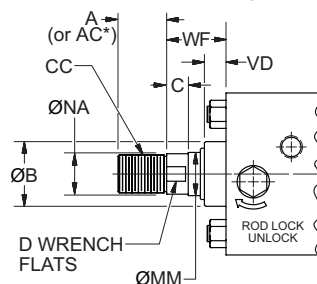
**Thread Style 2**



**Thread Style 3**



**Thread Style 4  
(or Automotive Male Style 5\*)**



**“Special”  
Thread Style 0**

Special thread, extension, rod eye, blank, etc. are also available.

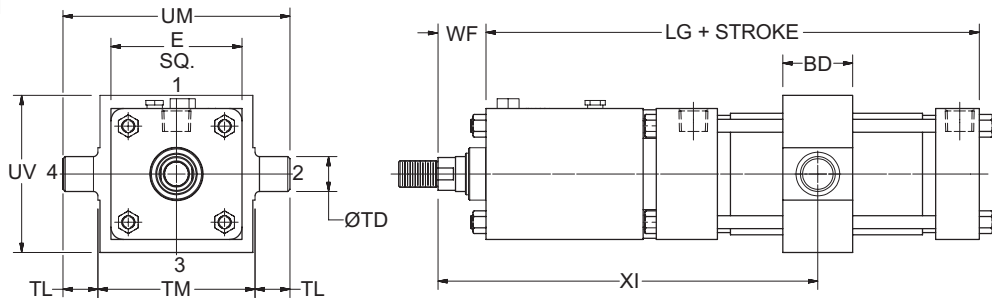
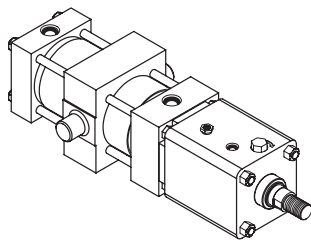
To order, specify “Style 0” and give desired dimensions for KK, A, & WF. If otherwise special furnish dimensional sketch.

\*Thread length AC is supplied with Automotive Male rod end style 5.



Style MT4 – Single Rod End

1½" to 8" Bore Size



Style MT4 Single Rod End – Envelope and Mounting Dimensions

Bore Ø	E	TD +.000 -.001	TL	TM	UM	UV	Style DD Minimum Stroke
1.50	2.00	1.000	1.00	2.50	4.50	2.50	3.25
2.00	2.50	1.000	1.00	3.00	5.00	3.00	4.00
2.50	3.00	1.000	1.00	3.50	5.50	3.50	3.88
3.25	3.75	1.000	1.00	4.50	6.50	4.25	4.38
4.00	4.50	1.000	1.00	5.25	7.25	5.00	4.88
5.00	5.50	1.000	1.00	6.25	8.25	6.00	5.13
6.00	6.50	1.375	1.38	7.63	10.38	7.00	6.13
8.00	8.50	1.375	1.38	9.75	12.50	9.50	6.50

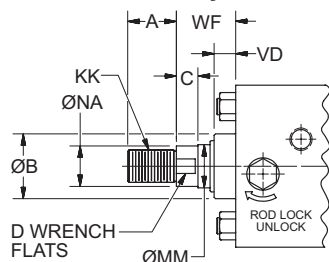
Style MT4 Single Rod End – Rod Dimensions

Bore Ø	MM Rod Ø	Thread		Rod Extensions and Pilot Dimensions								LG Add Stroke	XI† Minimum
		CC Style 4 & 5*	KK Style 2 & 3	A	AC*	B +.000 -.002	C	D	NA	VD	WF		
1.50	0.625	1/2-20	7/16-20	0.75	1.13	1.124	0.38	0.50	0.56	0.38	1.00	6.50	9.00
	2.00	0.625	1/2-20	7/16-20	0.75	1.13	1.124	0.38	0.50	0.56	0.38	1.00	6.81
2.00	1.000	7/8-14	3/4-16	1.13	1.88	1.499	0.50	0.88	0.94	0.50	1.38	7.81	11.31
	2.50	0.625	1/2-20	7/16-20	0.75	1.13	1.124	0.38	0.50	0.56	0.50	1.00	6.94
2.50	1.000	7/8-14	3/4-16	1.13	1.88	1.499	0.50	0.88	0.94	0.50	1.38	8.06	11.44
	3.25	1.000	7/8-14	3/4-16	1.13	1.88	1.499	0.50	0.88	0.94	0.50	1.38	9.13
3.25	1.375	1 1/4-12	1-14	1.63	2.50	1.999	0.63	1.13	1.31	0.63	1.63	9.50	13.13
	4.00	1.000	7/8-14	3/4-16	1.13	1.88	1.499	0.50	0.88	0.94	0.50	1.38	9.50
4.00	1.375	1 1/4-12	1-14	1.63	2.50	1.999	0.63	1.13	1.31	0.75	1.63	9.75	13.88
	1.750	1 1/2-12	1 1/4-12	2.00	3.00	2.374	0.75	1.50	1.69	0.88	1.88	10.13	14.50
5.00	1.000	7/8-14	3/4-16	1.13	1.88	1.499	0.50	0.88	0.94	0.50	1.38	10.38	14.50
	1.375	1 1/4-12	1-14	1.63	2.50	1.999	0.63	1.13	1.31	0.75	1.63	10.75	15.13
5.00	1.750	1 1/2-12	1 1/4-12	2.00	3.00	2.374	0.75	1.50	1.69	0.88	1.88	11.38	16.00
	6.00	1.375	1 1/4-12	1-14	1.63	2.50	1.999	0.63	1.13	1.31	0.75	1.63	11.88
6.00	1.750	1 1/2-12	1 1/4-12	2.00	3.00	2.374	0.75	1.50	1.69	0.88	1.88	12.38	17.50
	2.000	1 3/4-12	1 1/2-12	2.25	3.50	2.624	0.88	1.69	1.94	1.25	2.00	12.50	17.75
8.00	1.375	1 1/4-12	1-14	1.63	2.50	1.999	0.63	1.13	1.31	0.75	1.63	12.38	17.63
	1.750	1 1/2-12	1 1/4-12	2.00	3.50	2.374	0.75	1.50	1.69	0.88	1.88	12.88	18.38
8.00	2.500	2 1/4-12	1 7/8-12	3.00	4.50	3.124	1.00	2.06	2.38	1.38	2.25	13.25	19.13

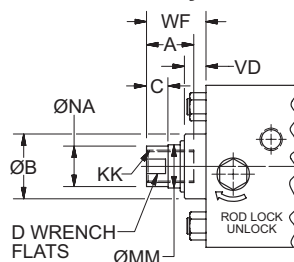
† Dimension XI to be specified by customer. If a shorter than minimum XI is required, the MT1 Mount on page 103 may be suitable.

Rod End Dimensions

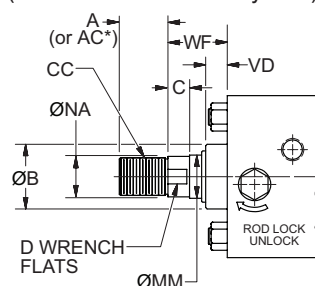
Thread Style 2



Thread Style 3



Thread Style 4 (or Automotive Male Style 5\*)



“Special” Thread Style 0

Special thread, extension, rod eye, blank, etc. are also available.

To order, specify “Style 0” and give desired dimensions for KK, A, & WF. If otherwise special furnish dimensional sketch.

\*Thread length AC is supplied with Automotive Male rod end style 5.

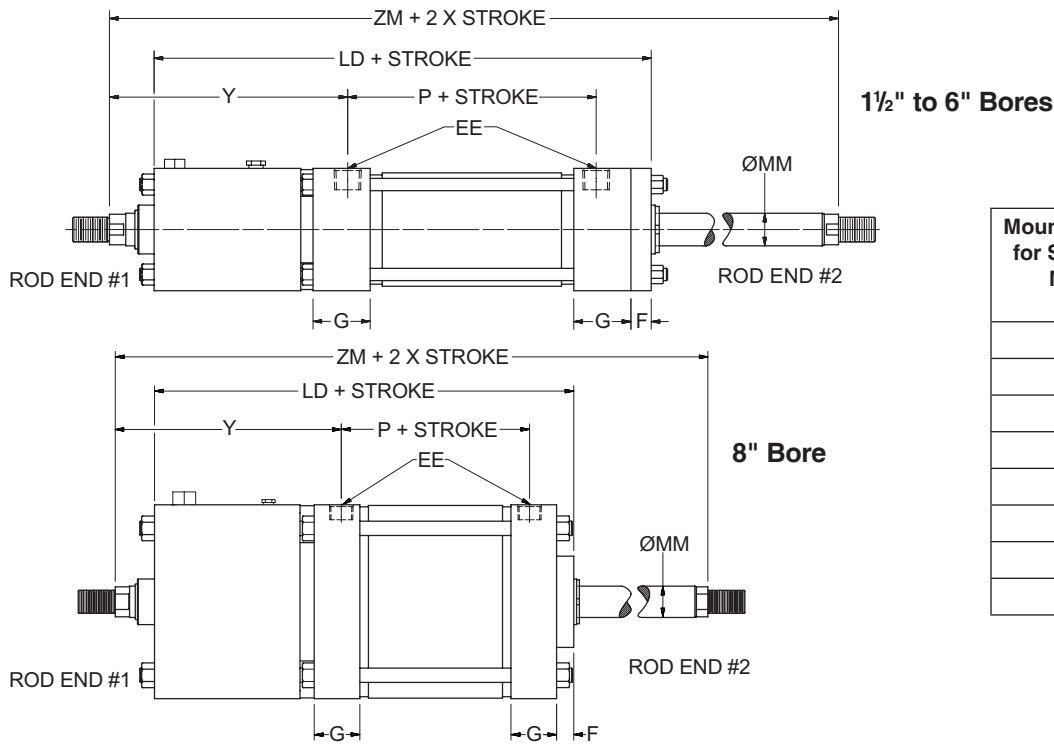
**How to Use Double Rod Cylinder Dimension Drawings**

To determine dimensions for a double rod cylinder, first refer to the desired single rod mounting style cylinder shown on preceding pages of this catalog. After selecting necessary dimensions from that drawing, return to this page and supplement the single rod dimensions with those shown in the drawings and dimension table below. Note that double rod cylinders have a head (Dim. G) at both ends and that dimension LD replaces LG.

The double rod dimensions differ from, or are in addition

to those for single rod cylinders shown on preceding pages and provide the information needed to completely dimension a double rod cylinder.

On a double rod cylinder, where the two rod ends are different, be sure to clearly state which rod end is to be assembled at which end. Port position #1 is standard. If other than standard, specify port position #2, 3 or 4 as viewed from one end only.



Mounting Styles for Single Rod Models	Corresponding Mounting Styles for Double Rod Models
MX0	MDX0
MX3	MDX3
MX1	MDX1
MF1	MDF1
MS2	MDS2
MS4	MDS4
MT1	MDT1
MT4	MDT4

Bore Ø	MM Rod Ø	EE NPTF	F	G	P	Y	Add Stroke		Add 2X Stroke	
							LD	SSK	ZM	
1.50	0.625	3/8	0.38	1.50	2.25	4.81	7.38	2.88	9.00	
2.00	0.625	3/8	0.38	1.50	2.25	5.13	7.69	2.88	9.31	
	1.000	3/8	0.38	1.50	2.25	6.50	8.69	2.88	11.06	
2.50	0.625	3/8	0.38	1.50	2.38	5.13	7.81	3.00	9.44	
	1.000	3/8	0.38	1.50	2.38	6.63	8.94	3.00	11.31	
3.25	1.000	1/2	0.63	1.75	2.63	7.31	10.25	3.25	12.38	
	1.375	1/2	0.63	1.75	2.63	7.94	10.63	3.25	13.25	
4.00	1.000	1/2	0.63	1.75	2.63	7.69	10.63	3.25	12.75	
	1.375	1/2	0.63	1.75	2.63	8.19	10.88	3.25	13.50	
	1.750	1/2	0.63	1.75	2.63	8.81	11.25	3.25	14.38	
5.00	1.000	1/2	0.63	1.75	2.88	8.31	11.50	3.13	13.63	
	1.375	1/2	0.63	1.75	2.88	8.94	11.88	3.13	14.50	
	1.750	1/2	0.63	1.75	2.88	9.81	12.50	3.13	15.63	
6.00	1.375	3/4	0.75	2.00	3.13	9.69	13.13	3.63	15.63	
	1.750	3/4	0.75	2.00	3.13	10.44	13.63	3.63	16.63	
	2.000	3/4	0.75	2.00	3.13	10.69	13.75	3.63	17.00	
8.00	1.375	3/4	0.75	2.00	3.25	10.06	13.63	3.75	16.13	
	1.750	3/4	0.75	2.00	3.25	10.81	14.13	3.75	17.13	
	2.500	3/4	0.75	2.00	3.25	11.56	14.50	3.75	18.25	
								Replaces Dimension	SS	
								On Single Rod Mounting Style	MS2	

**Rod Lock Removal**

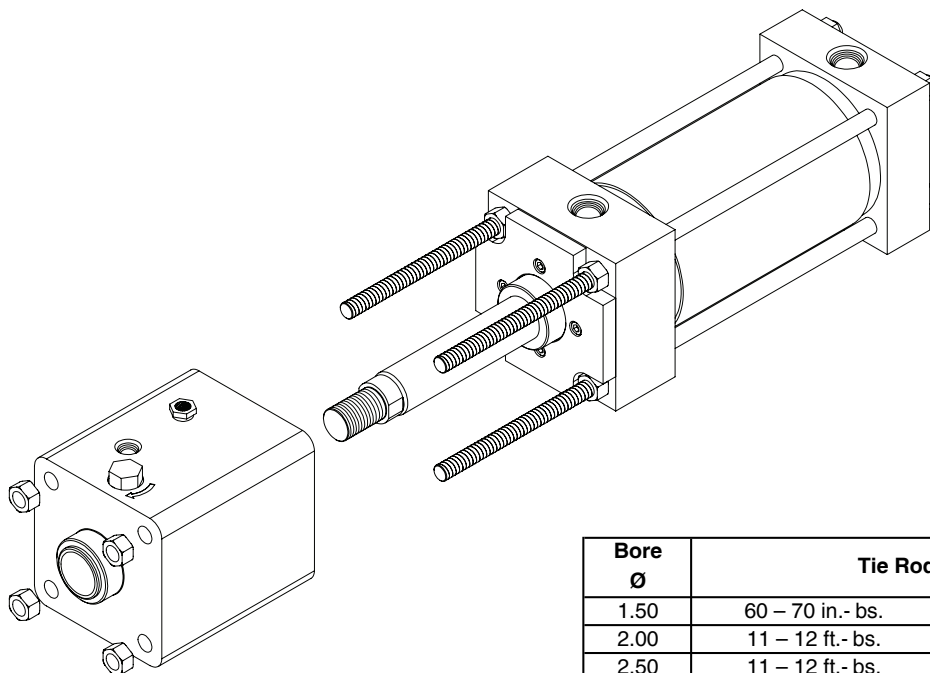
To service the base NC9 or PA-2 Series cylinder the Rod Lock must first be removed.

**Note: The Rod Lock cannot be serviced nor is it considered a service item. The NC9 or PA-2 cylinder must be returned to the factory for Rod Lock service.**

1. Using a corner-to-corner sequence, remove the four hex tie rod nuts at the face of the Rod Lock.
2. Apply a minimum of 60 psi to the Rod Lock release port, or apply the appropriate torque to the manual override shaft to disengage the Rod Lock from the piston rod.
3. Carefully slide the Rod Lock off the cylinder. The Rod Lock is piloted and sealed to the gland OD which may necessitate carefully prying the unit from the gland retainer.
4. The NC9 or PA-2 cylinder can now be serviced per normal practice. See page 86 for NC9 Service Kits or pages C-34 and C-35 for PA-2 Service Kits.

**Rod Lock Installation**

1. Ensure that the mating surfaces of the Rod Lock and cylinder are free of dirt and debris.
2. Apply a minimum of 60 psi to the Rod Lock release port, or apply the appropriate torque to the manual override shaft to disengage the Rod Lock from the piston rod.
3. Carefully slide the rod lock onto the piston rod toward the base cylinder. Because the Rod Lock is sealed to the gland some force may be required to bring it in contact with the gland retainer. Take care not to damage to Rod Lock-to-gland o-ring seal.
4. Torque the hex tie rod nuts that secure the Rod Lock to the values in the table below. Be sure to reuse nuts supplied with the cylinder. Torque the nuts gradually, starting at one corner and work in a diagonal pattern to ensure evenness of tightening. **DO NOT TORQUE ONE NUT COMPLETELY AND THEN THE OTHERS.**
5. Remove air pressure from the Rod Lock release port or torque from the manual override release shaft to engage the Rod Lock.



Bore Ø	Tie Rod Torque	
	in.-bs.	cm-kg
1.50	60 – 70	69 – 81
2.00	11 – 12	15 – 16
2.50	11 – 12	15 – 16
3.25	25 – 26	34 – 35
4.00	25 – 26	34 – 35
5.00	60 – 64	81 – 87
6.00	60 – 64	81 – 87
8.00	110 – 114	149 – 155

## How to Order NC-9 or PA-2 Series Cylinders

When ordering NC-9 or PA-2 Series cylinders, please review the following:

**Note:** Duplicate cylinders can be ordered by giving the SERIAL NUMBER from the nameplate of the original cylinder. Factory records supply a quick positive identification.

**Piston Rods:** Specify model number code based on bore size and rod diameter. Give thread style number for a standard thread or specify dimensions. See "Style 0 Rod End" below.

**Cushions:** If cushions are required specify according to the model number on the next pages. If the cylinder is to have a double rod and only one cushion is required, be sure to specify clearly which end of the cylinder is to be cushioned.

**Special Modifications:** Additional information is required on orders for cylinders with special modifications. This is best handled with descriptive notes. For further information, consult factory.

**Fluid Medium:** NC-9 or PA-2 Series pneumatic cylinders are equipped with seals for use with lubricated air.

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### Type 1 Seals

Type 1 seals are the seals provided as standard in a cylinder assembly unless otherwise specified. For further information on fluid compatibility or operating limitations of all components, see section C.

For the NC9 or PA-2 Series cylinders the following make-up Type 1 Seals:

Primary Piston Rod Seal – Nitrile with PTFE back-up washers

Piston Rod Wiper – Nitrile

Piston Seals – Nitrile with polymyte back-up washers

O-Rings – Nitrile

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### Style 0 Rod End

A style 0 rod end indicates a special rod end configuration. All special piston rod dimensions must have **all three:** KK; A; and W/WF specified with the rod fully retracted. A sketch or drawing should be submitted for rod ends requiring special machining such as snap ring grooves, keyways, tapers, multiple diameters, etc. It is good design practice to have this machining done on a diameter at least 0.065 inches smaller than the piston rod diameter. This allows the piston rod to have a chamfer preventing rod seal damage during assembly or maintenance. Standard style 6 rod ends with a longer

than standard WG dimension should call out a style 0 rod end and the note: **same as 6 except WG=\_\_\_\_\_**. A drawing should be submitted for special 6 rod ends that have specific tolerances or special radii. Special rod ends that have smaller than standard male threads, larger than standard female threads, or style 6 rod ends with smaller than standard AF or AE dimensions are to be reviewed by Engineering for proper strength at operating pressure.

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### Service Policy

On cylinders returned to the factory for repairs, it is standard policy for the Industrial Cylinder Division to make such part replacements as will put the cylinder in as good as new condition. Should the condition of the returned cylinder be such that expenses for repair would exceed the costs of a new one, you will be notified.

Address all correspondence and make shipments to, Service Department at your nearest regional plant listed in the pages of this catalog.

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### Certified Dimensions

Schrader Bellows guarantees that all cylinders ordered from this catalog will be built to dimensions shown. All dimensions are certified to be correct, and thus it is not necessary to request certified drawings.

**How To Order  
 By Model Number**

NC-9 Pneumatic Cylinders with Rod Lock can be specified by model number by using the tables shown at right. **Selections in bold type indicate current Ford standard.**

**1. Type**

Select the Model Number Code which identifies single, double end.

**2. Bore & Rod Diameter**

Select the Model Number Code which identifies the desired bore size and rod diameter combination.

**3. Mounting & Cushioning**

Select the Model Number Code which identifies the desired mounting style and cushioning option.

**4. Rod End Style**

Select the Model Number Code which identifies the desired rod end thread style.

**5. Seal Type**

Complete the Model Number by selecting the type of seals desired.

**6. Stroke Length**

It is necessary to specify the stroke length desired following the Model Number. For example: FAJA100851 with 6" stroke.

**Specifying the Desired Trunnion Location**

For cylinders with intermediate trunnion mounting, the dimension specified should be the distance from the piston rod reference point to the center-line of the pin.

**The Example Would Identify:**

A single end pneumatic cylinder with Rod Lock, 1-1/2" bore size, 5/8" piston rod diameter, side lug mount, cushioned both ends, with automotive male rod thread, Buna N Seals, and a 6" stroke.

**Optional Mounting Accessories**

Specify separately the part number for desired optional mounting accessories.

<b>1</b>	<b>Model Number</b>
<b>Type</b>	<b>Pneumatic Steel Tube</b>
<b>Single End with Rod Lock and NPT port</b>	<b>FAJ</b>
<b>Double End with Rod Lock and NPT port</b>	<b>FBJ</b>
Single End with Rod Lock and SAE port	NAJ
Double End with Rod Lock and SAE port	NBJ

**Model Number Example:**  
**FAJ A10 08 5 1 S W/6" Stroke**

<b>2</b>	<b>Bore Size</b>	<b>Rod Dia.</b>	<b>Model No. Code</b>
1 1/2"	5/8"		A10
2"	5/8"	<b>1"</b>	<b>B11</b>
2 1/2"	5/8"	<b>1"</b>	<b>C10</b> <b>C11</b>
3 1/4"	1"	<b>1 3/8"</b>	<b>D11</b> <b>D12</b>
4"	1"	1 3/8"	E11 <b>E12</b> <b>E13</b>
5"	1"	1 3/8"	F11 F12 <b>F13</b>
6"	1 3/8"	1 3/4"	G12 G13 <b>G14</b>
8"	1 3/8"	2"	J12 J13 <b>J15</b>

<b>3</b>	<b>Model Number Code</b>				
	<b>NFPA Style</b>	<b>Non-Cush.</b>	<b>Cush. Head</b>	<b>Cush. Cap</b>	<b>Cush. Both</b>
<b>Mounting Style</b>					
<b>Side Lug</b>	<b>MS2</b>	<b>05</b>	<b>06</b>	<b>07</b>	<b>08</b>
Side Tap	MS4	13	14	15	16
<b>Head Rectangular Flange (1 1/2-8)</b>	<b>MF1</b>	<b>21</b>	<b>22</b>	<b>23</b>	<b>24</b>
<b>Cap Rectangular Flange (1 1/2-6)</b>	<b>MF2</b>	<b>25</b>	<b>26</b>	<b>27</b>	<b>28</b>
<b>Cap Square (8)</b>	<b>ME4</b>	<b>41</b>	<b>42</b>	<b>43</b>	<b>44</b>
<b>Tie Rods Extended Both Ends</b>	<b>MX1</b>	<b>53</b>	<b>54</b>	<b>55</b>	<b>56</b>
<b>Tie Rods Extended Cap End</b>	<b>MX2</b>	<b>57</b>	<b>58</b>	<b>59</b>	<b>60</b>
<b>Tie Rods Extended Head End</b>	<b>MX3</b>	<b>61</b>	<b>62</b>	<b>63</b>	<b>64</b>
Head Trunnion	MT1	69	70	71	72
Cap Trunnion	MT2	73	74	75	76
<b>Intermediate Fixed Trunnion</b>	<b>MT4</b>	<b>77</b>	<b>78</b>	<b>79</b>	<b>80</b>
<b>Cap Fixed Clevis</b>	<b>MP1</b>	<b>81</b>	<b>82</b>	<b>83</b>	<b>84</b>
Spherical Bearing	MPU3	89	90	91	92
NO MOUNT	MX0	93	94	95	96

<b>4</b>	<b>Rod End Style</b>	<b>Model Number Code</b>
	Small Male	2
	Short Female	3
	Intermediate Male	4
	<b>Automotive Male</b>	<b>5</b>
	Female Thread for Spherical Rod Eye	7
	Special Specify	0

<b>5</b>	<b>Seal Type</b>	<b>Model Number Code</b>
	<b>Buna N Seals</b>	<b>1</b>
	Fluorocarbon Seals	2

<b>6</b>	<b>Special Features</b>	S
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<b>7</b>	<b>Specify Stroke Length</b>	6.00"
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**A**  
 PA-2  
 NC9  
 Rod Lock

**How To Order  
 By Model Number**

PA-2 Pneumatic Cylinders with Rod Lock can be specified by model number by using the tables shown at right.

**1. Type**

Select the Model Number Code which identifies single, double end or non-lube.

**2. Bore & Rod Diameter**

Select the Model Number Code which identifies the desired bore size and rod diameter combination.

**3. Mounting & Cushioning**

Select the Model Number Code which identifies the desired mounting style and cushioning option.

**4. Rod End Style**

Select the Model Number Code which identifies the desired rod end thread style.

**5. Seal Type**

Complete the Model Number by selecting the type of seals desired.

**6. Stroke Length**

It is necessary to specify the stroke length desired following the Model Number. For example: PAJA101621 with 6" stroke.

**Specifying the Desired Trunnion Location**

For cylinders with intermediate trunnion mounting, the dimension specified should be the distance from the piston rod reference point to the center-line of the pin.

**The Example Would Identify:**

A single end pneumatic cylinder with Rod Lock, 1-1/2" bore size, 5/8" piston rod diameter, side tapped mount, cushioned both ends, with a small male rod thread, Buna N Seals, a 6" stroke.

**Optional Mounting Accessories**

Specify separately the part number for desired optional mounting accessories.

**Model Number Example:**

**PAJ A10 16 2 1 W/6" Stroke**

1	Model Number
<b>Type</b>	<b>PA-2 Series Pneumatic</b>
Single End with Rod Lock	PAJ
Double End with Rod Lock	PBJ
Non-Lube Single End with Rod Lock	PNJ
Non-Lube Double End with Rod Lock	PPJ

2	Bore Size	Rod Dia.	Model No. Code
	1 1/2"	5/8"	A10
	2"	5/8"	B10
		1"	B11
	2 1/2"	5/8"	C10
		1"	C11
	3 1/4"	1"	D11
		1 3/8"	D12
	4"	1"	E11
		1 3/8"	E12
		1 3/4"	E13
	5"	1"	F11
		1 3/8"	F12
		1 3/4"	F13
	6"	1 3/8"	G12
		1 3/4"	G13
		2"	G14
	8"	1 3/8"	J12
		1 3/4"	J13
		2 1/2"	J15

3	Model Number Code				
	NFPA Style	Non-Cush.	Cush. Head	Cush. Cap	Cush. Both
<b>Mounting Style</b>					
Side Lug	MS2	05	06	07	08
Side Tap	MS4	13	14	15	16
Head Rectangular Flange (1 1/2-8)	MF1	21	22	23	24
Cap Rectangular Flange (1 1/2-6)	MF2	25	26	27	28
Cap Square (8)	ME4	41	42	43	44
Tie Rods Extended Both Ends	MX1	53	54	55	56
Tie Rods Extended Cap End	MX2	57	58	59	60
Tie Rods Extended Head End	MX3	61	62	63	64
Head Trunnion	MT1	69	70	71	72
Cap Trunnion	MT2	73	74	75	76
Intermediate Fixed Trunnion	MT4	77	78	79	80
Cap Fixed Clevis	MP1	81	82	83	84
Spherical Bearing	MPU3	89	90	91	92
NO MOUNT	MX0	93	94	95	96

4	Rod End Style	Model Number Code
	Small Male	2
	Short Female	3
	Intermediate Male	4
	Flange Coupling	6
	Female Thread for Spherical Rod Eye	7
	Special Specify	0

5	Seal Type*	Model Number Code
	Buna N Seals	1
	Fluorocarbon Seals	2

6	Specify Stroke Length	Model Number Code
	6.00"	

**Note:** For special modifications other than piston rod ends use S in the tenth position of the model number and describe special features required.  
 Example: PAJA101621S 6" Stroke  
 Cylinder to be Nickel Plated.

## NOTES

**A**

PA-2

NC9

**Rod Lock**

## NOTES